Modern Mill Lighting—p. 97

Chemical-Finishing Conference—p. 120

Plant Communications—p. 143

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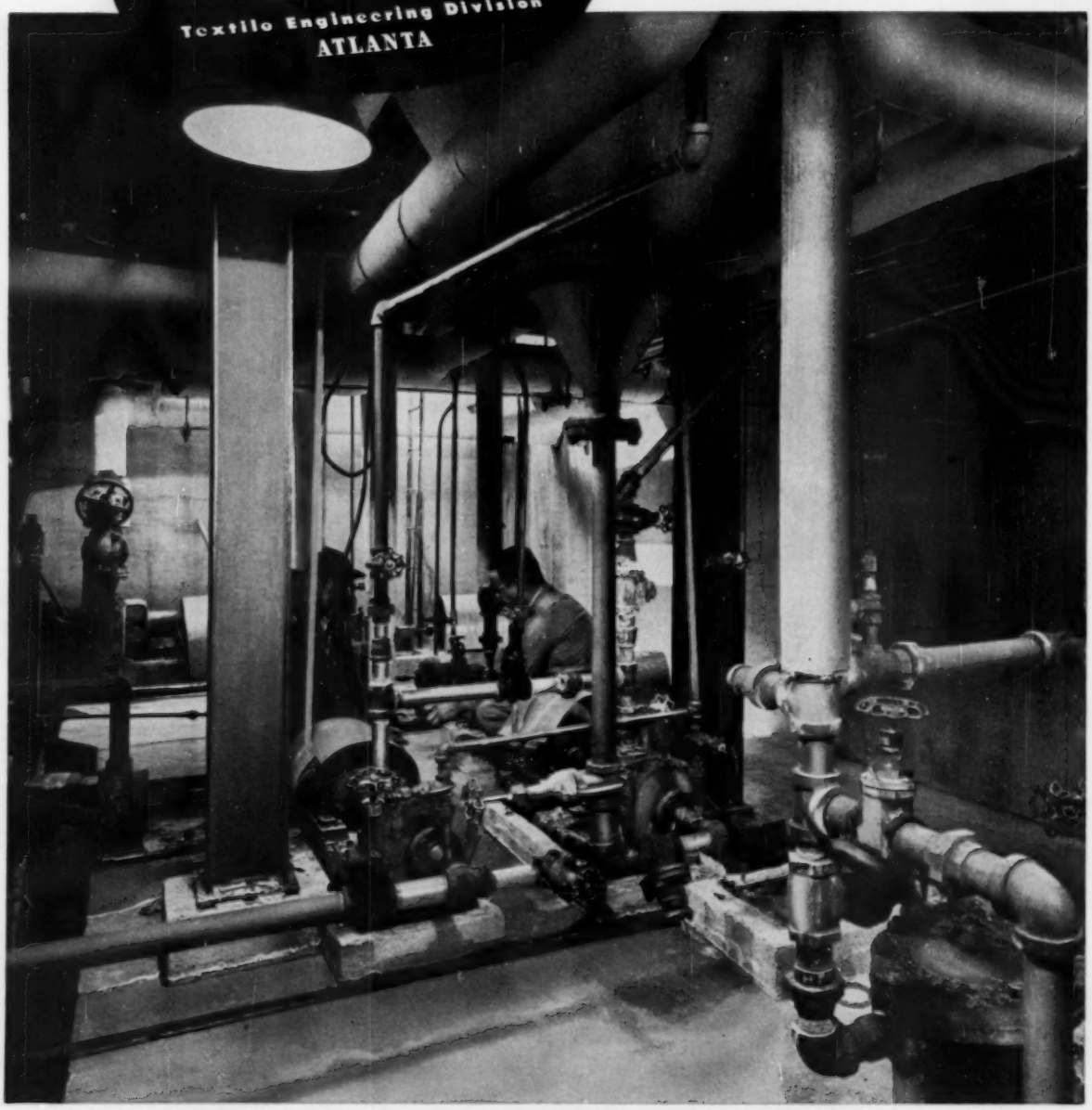
Textile Engineering
CAUSTIC RECOVERY

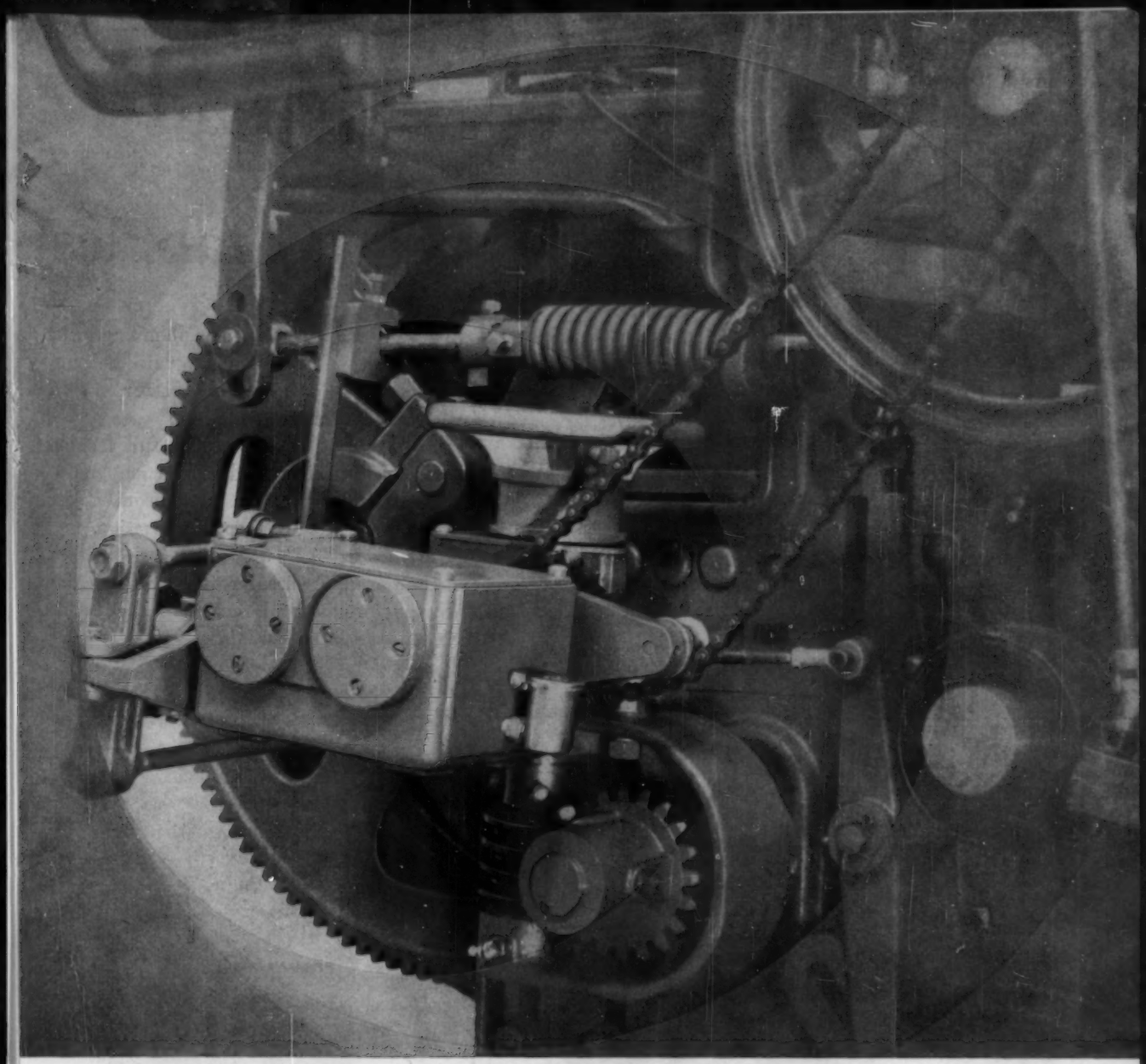
Caustic recovery in large-volume operations is rapidly proving its worth by reclaiming a major portion of all caustic waste.

An ever-increasing number of textile leaders have found it profitable to reclaim caustic while solving the problem of industrial waste treatment. Robert and Company Associates have helped install this process in a number of plants.

The profit potential in caustic recovery has proven its value to many in the bleaching and finishing field. An engineering survey of your caustic operation may be the first step in solving your problem.

ROBERT AND COMPANY ASSOCIATES
Textile Engineering Division
ATLANTA





DRAPER . . . TRU-TENSION LET-OFF

The Draper Tru-Tension Let-off controls yarn tension *automatically*, from full to empty beam. This is made possible by *a positive, continuous drive* and a compensating friction transmission.

The "Tru-Tension," a compact, precision built mechanism eliminates many cloth defects commonly attributed to the Let-off.

Simplified design provides for fast, easy application. The new "Tru-Tension" may be applied directly to looms having the conventional #4 Automatic Bartlett. Looms equipped with other Bartlett Let-offs require a new Worm Wheel Shaft Housing.

Little or no adjustment is required from full to empty beam *once the initial settings are established*. On critical weaves, substantial savings are possible.

The Tru-Tension Let-off is currently available for X-2, XD, and XP model looms. For additional information on this and other Draper products, consult your Draper representative.

DRAPER CORPORATION

HOPEDALE, MASS.

Atlanta, Ga. • Greensboro, N.C. • Spartanburg, S.C.

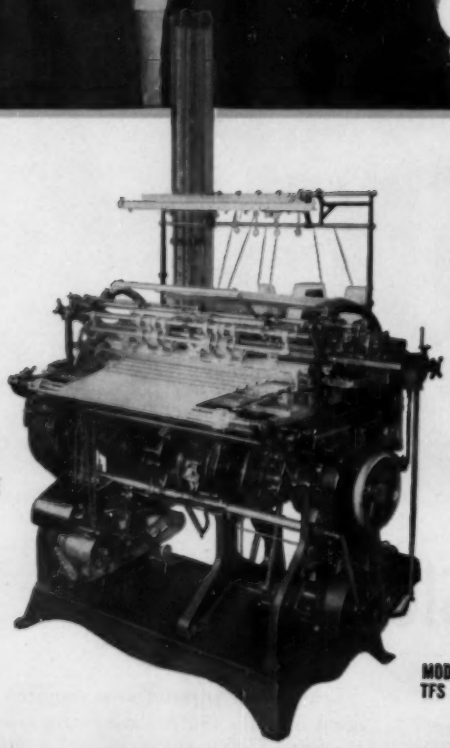
The accent is on *quality* fabrics

Whether it be full fashion or plain interlock, fabrics made on Wildman Jacquard knitting machines are "distinctively different" in quality and appearance.

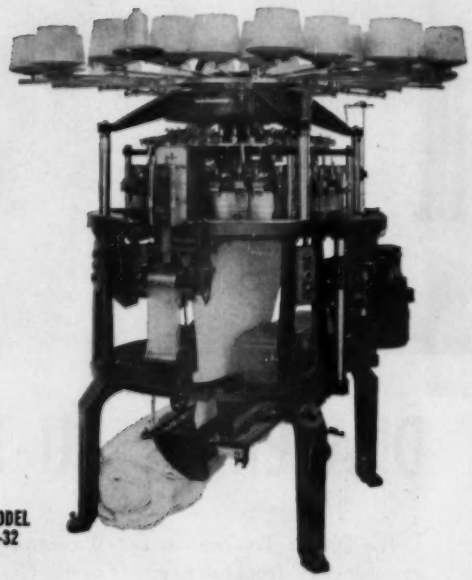
The "TFS" 30" single section full fashion machine permits increased production, multiplicity of sizes to be run simultaneously, less downtime and greater ease of operation.

The model "AI" 32" diameter 32 feed "single purpose" circular interlock machine (rib type) produces a larger, more serviceable piece of true interlock fabric.

For knitting versatility... production and quality — specify WILDMAN JACQUARD knitting machinery



MODEL TFS



MODEL AI-32

WILDMAN JACQUARD

A subsidiary of Draper Corporation, Hopedale, Mass.

For complete information, write:

WILDMAN-JACQUARD CO.
1210 Stanbridge St.
Norristown, Pa.

. . . Leading manufacturers of fine knitting machinery

Textile World

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CALENDAR

December

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Dec. 4.

AATCC, Rhode Island Section, annual meeting, Providence, R. I., Dec. 5.

AATCC, Delaware Valley Section, Kugler's Restaurant, Philadelphia, Pa., Dec. 6.

AATCC, Northern New England Section, annual meeting, Hotel Continental, Cambridge, Mass., Dec. 6.

AATCC, Southeastern Section, Dinkler Plaza Hotel, Atlanta, Ga., Dec. 7.

AATCC, Western New England Section, Rapp's Restaurant, Shelton, Conn., Dec. 13.

1958

January

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Jan. 8.

1958 Plant Maintenance & Engineering Show, International Amphitheatre, Chicago, Ill., Jan. 27 to 30.

American Society for Quality Control, Textile Div., eighth annual conference, Clemson House, Clemson, S. C., Jan. 30, 31, Feb. 1.

February

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Feb. 5.

1958 Cotton Research Clinic, Pinehurst, N. C., Feb. 12 to 14.

March

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Mar. 5.

Textile Quality Control Association, spring meeting, Poinsett Hotel, Greenville, S. C., Mar. 6 & 7.

American Society for Testing Materials, Committee D-13, spring meeting, Sheraton Park Hotel, Washington, D. C., Mar. 18 to 21.

April

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Apr. 2.

American Cotton Manufacturers Institute, annual convention, Apr. 10 to 12.

Alabama Textile Manufacturers Association, annual meeting, Buena Vista Hotel, Biloxi, Miss., Apr. 16 to 18.

National Association of Hosiery Manufacturers, annual meeting, Hotel Roanoke, Roanoke, Va., Apr. 21 & 22.

Cotton Manufacturers Association of Georgia, Boca Raton Hotel & Club, Boca Raton, Fla., Apr. 23 to 26.

Phi Psi Textile Fraternity, annual convention, Philadelphia, Pa., Apr. 24 to 26.

Fiber Society, Inc., spring meeting, Clemson House, Clemson, S. C., Apr. 30, May 1.

May

Underwear Institute, annual meeting, Hotel Biltmore, New York, N. Y., May 1.

Canadian Textile Conference, Queen Elizabeth Hotel, Montreal, Que., May 6 to 8.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., May 7.

June

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., June 4.

Materials Handling Exposition, Public Auditorium, Cleveland, Ohio, June 9 to 12.

SUBSCRIPTIONS are solicited only from executives, engineers, chemists, and technicians in textile manufacturing and finishing plants. Position and company connection must be indicated on subscription order. Single copies $1.00. Subscription rates: United States and Possessions and Canada, $2.00 a year; all other countries, $15.00 a year. Second-class mail privileges authorized at Albany, N. Y. Printed in U.S.A. Annual index in January issue.

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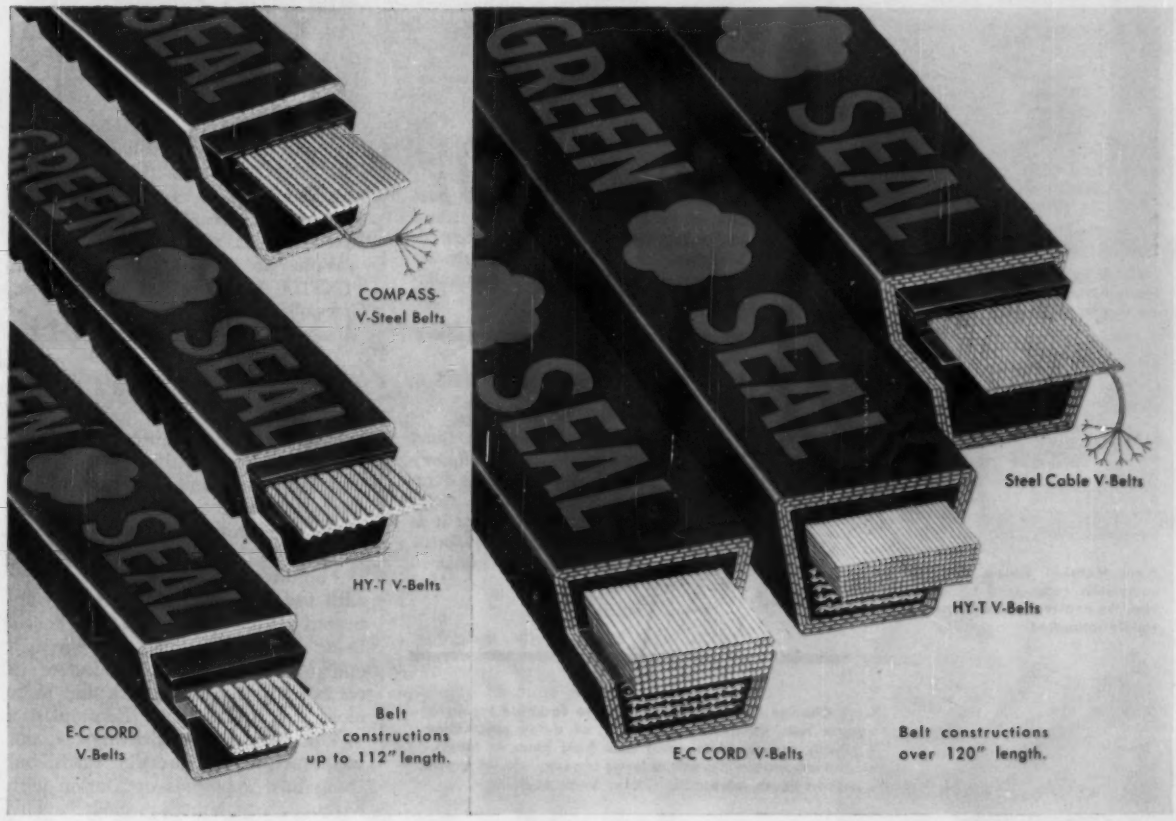
Do you know the inside story of

V-Belts with the Green Seal?



Until recently dimensional stability was possible only in V-Belts with steel load-carriers as developed by Goodyear. But now you can have that stability in a complete line of belts – thanks to the development of Triple-Tempered (3-T) cord–synthetic cord tempered by Tension, Temperature and Time.

What's your pay-off from this dimensional stability?

When you're belting multiple drives, it's your one guarantee that every set of matched belts will *really* match. No matter how long you store them, they'll *stay* matched, too.

And once they're installed, you've got belts designed and built to work as a perfect team–without individual belts either "loafing" or overworking. In fact, you're protected from all the usual mismatching headaches that also include slipping, stretching, scorching.

In other words, you're belted for maximum trouble-free horsepower hours at minimum cost. There's no substitute for that kind of performance – or for the V-Belts with the Green Seal that give it to you – every time.

So see your dealer about the V-Belts with true dimensional stability–the V-Belts with the Green Seal. Or write Goodyear, Industrial Products Division, Lincoln 2, Nebraska, or Akron 16, Ohio.

DIMENSIONALLY STABLE V-BELTS with the GREEN SEAL by

GOODYEAR

THE GREATEST NAME IN RUBBER

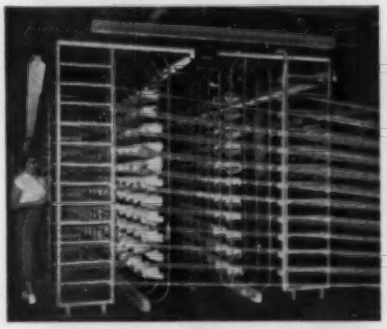
Compass, E-C Cord, Hy-T, Green Seal–T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

Watch "Goodyear Theater" on TV – every other Monday 9:30 P.M., E.S.T.

For more data, write this page number on Reader-Service card. →

McBRIDE CREEL CORNER

MAGAZINE WARPING CREELS AND COMPONENTS



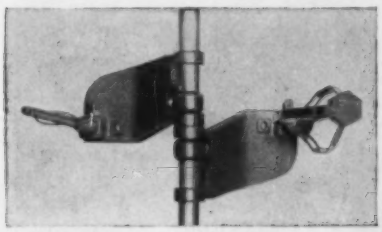
McBride SRM Inside Loading Creel. Both sides are loaded from center aisle. Also arranged for outside loading.

Compact—engineered to do the job within the space available.

Flexible—each creel is individually designed. Your needs are our first concern.

Accessible from loading to drawing-in, McBride creels are easily and efficiently operated.

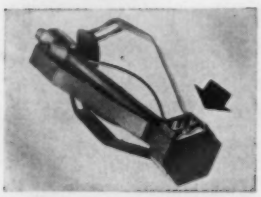
Rigid monorail construction and sturdy rust-proofed tubing support the largest packages and withstand the highest speeds. Package arms and tensions are easily positioned and firmly secured. The floor under the creel may readily be cleaned to prevent the accumulation of lint.



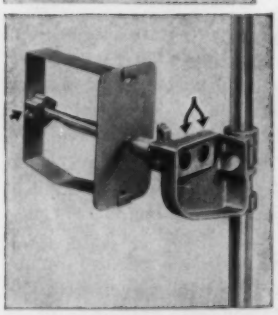
New McBride Swing Arm Assembly—completely redesigned for greater rigidity. Now the heaviest packages are securely and rigidly supported.

McBRIDE PACKAGE HOLDERS—FLEXIBLE—VERSATILE

The Bowed Spring Spindle is tilted upward to a 5° angle to prevent slippery yarns from sloughing off the cone. Arm swings out for package change, snaps back in running position where it is secured by internal ball type spring lock held by an indented, hardened steel collar.



Quik-Change Cone Holder rotates to facilitate typing of transfer tails. Completely rust-proof, of sturdy construction, it greatly reduces changeover time from cones to tubes—of vital importance in creels of large capacity. No set screws. Just press thumb release to remove. Snaps back on.



Quik-Change Large Package Holder supports packages with inside diameter of 2" or greater. Positive spring action holds package firmly. Press button thumb release permits quick change from one style package to another.

Note that spindle arm can be repositioned for shorter radius as desired. Such flexibility saves space and increases adaptability. McBride Quik-Change Large Package Holder is available in a full range of sizes to handle any style of large package.

Let McBride Study Your Warping Situation. You Might Be Surprised With The Costs You Can Save, The Improved Quality In The Warps You Produce.

CREELS for every purpose, CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS. COMPLETE ENGINEERING SERVICE IS PART OF EVERY McBRIDE INSTALLATION.

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PHILADELPHIA 35, PENNSYLVANIA

In Canada: Hugh Williams & Co., 27 Wellington St., E. Toronto 1, Ontario

Letters From Readers

We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connection when your letter is printed. If you prefer to have your opinion appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

MORE ABOUT METALLIC YARNS

Dear Editor:

I have read your interesting "Special Report on Metallic Yarns" [TEXTILE WORLD, June, '57, p. 91] and find a number of statements that could be misunderstood by some readers.

The mention of cellulose acetate with foil was omitted. This yarn appeared before butyrate yarn and is still being used in large quantities for such end products as ribbons. Butyrate, of course, has greater strength and more elongation and is not as thermoplastic.

You state that slashing is not recommended for metallic yarns, but thousands of pounds of Metlon with Mylar are slashed weekly. This metallic yarn is beamed with the cotton yarn and treated under regular conditions.

You point out that metallic yarns will stand up to 300° F. in dry-finishing operations. Butyrate yarns would disintegrate at this temperature; only metallics with Mylar will stand this temperature.

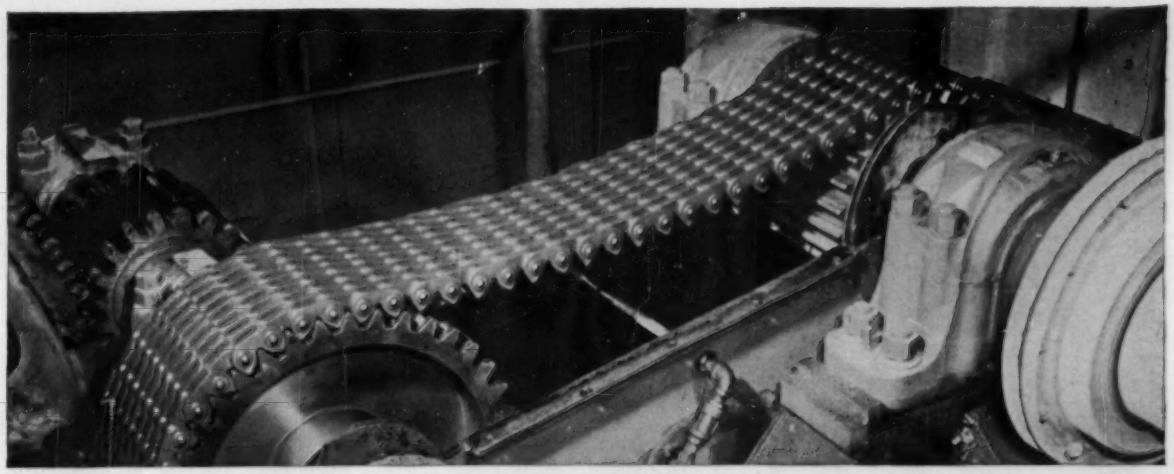
You mention that direct colors and aftertreated direct colors are most used to dye metallics. We find that vat dyes are most used for Metlon with Mylar yarns, although we wouldn't suggest vat dyes for butyrate yarns.

We feel that the use of films other than polyester films is steadily diminishing but feel that other new films will be introduced that may give present-day films some competition.

RALPH M. FREYDBERG
Treasurer

Metlon Corp.
New York, N. Y.

CONTINUED ON PAGE 8



HIGH SPEED. Traveling at speeds as high as 5000 fpm, silent chain drives readily accommodate the extreme peak loads without losing their better-than-98% efficiency.

How LINK-BELT silent chain drives survive industry's roughest requirements

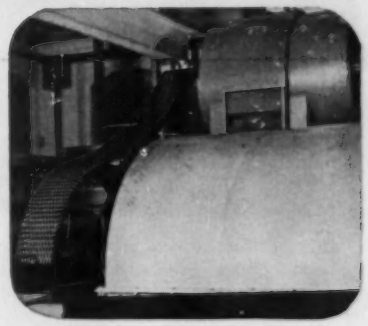
Would your drives do as well?

On applications like these and scores more, no other type of drive is the equal of Link-Belt silent chain. Ask your Link-Belt office or authorized stock-carrying distributor for comprehensive 88-page Book 2425.

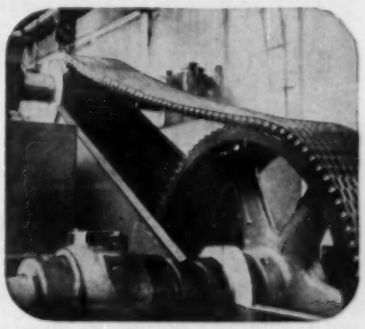
LINK-BELT

SILVERSTREAK SILENT CHAIN DRIVES

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville (Sydney), N.S.W.; South Africa, Springs. Representatives Throughout the World. 14,079

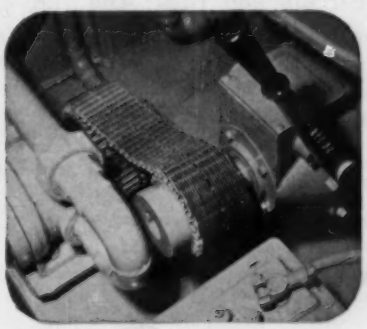


LARGE OR SMALL HP. On a 300 hp drive like this or at fractional hp, silent chain is always lower in ultimate cost.

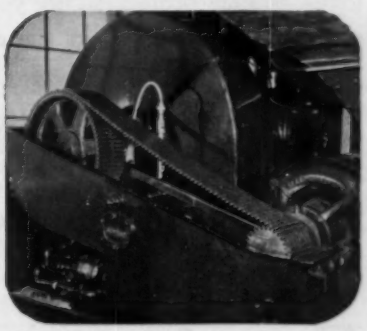


LARGE RATIOS. Link-Belt silent chain operates efficiently on extremely short centers at ratios as high as 10-to-1.

ADVERSE OPERATING CONDITIONS. Heat, humidity and cold have little effect on Link-Belt silent chain drive performance.



LIMITED SPACE. Easy to assemble in close quarters, Link-Belt silent chain permits built-in drives, compact housings.



LONG LIFE. This drive is 16 years old and still going strong. Not unusual—many others have lasted twice that long.

For more data, write this page number on Reader-Service card. →

Bemis Covers are fast and easy to use. A latex adhesive is brushed through the pores of the uncoated burlap overlap, forming an especially strong seal. Then the ends of the cover are wire-tied. That's all there is to it.

Bemis Laminated Shipping Covers will save you labor—time—money and protect your carpets and rugs

Sturdy Bemis Laminated Covers for shipping carpets and rugs are quick and easy to apply . . . so you save labor, time *and* money. The laminated material (burlap and paper laminated with asphalt) comes in sheets or rolls, so you save valuable storage space. The puncture- and moisture-resistant material gives special protection to your carpets and rugs. And the covers fit so snugly that the roll can't telescope and damage the tuft and pile.

Ask for *details* of the benefits you get from Bemis covers.

Bemis Products for the Carpet and Textile Industry

Laminated Sheets • Laminated Yardage • Laminated Tubing
Tite-Fit Tubing • Paper Rug Covers • Burlap Piece Goods
Wire Ties and Tying Equipment

Bemis General Offices—St. Louis 2, Mo.

BEMIS BAG CO.

← For more data, write this page number on Reader-Service card.

KINK CONTRIBUTOR FINDS WORK INTERESTING

Dear Editor:

I sent my first Kink to TEXTILE WORLD eight years ago and it was accepted. I have since had many Kinks published in your magazine, and two of my Kinks have won Kink-of-the-Month prizes this year.

Writing Kinks is interesting as well as profitable. I receive a lot of mail, some of it from other countries, about my Kinks that are published in TEXTILE WORLD. I have also noticed some letters in the Questions and Answers department that referred to some of my Kinks.

H. J. HAAS

Martinsburg, W. Va.

NAVY IS SEEKING SWEATERS

Dear Editor:

We have a project to improve the utility of the current Navy women's sweater.

A prototype has been developed and found satisfactory. Based on this Size 34 sample, measurements were graded in 10 sizes from 28 to 46.

To check the feasibility of the measurements, we desire a small quantity of sweaters made in all 10 sizes.

We realize that knitters are at their height of production right now and cannot release their equipment to handle this small order. We are, however, seeking manufacturers who produce either the fabric or the end item.

There is no urgency to have these sweaters made, and delivery during the early part of 1958 will be satisfactory. The samples can be made in any color, provided they meet with these requirements:

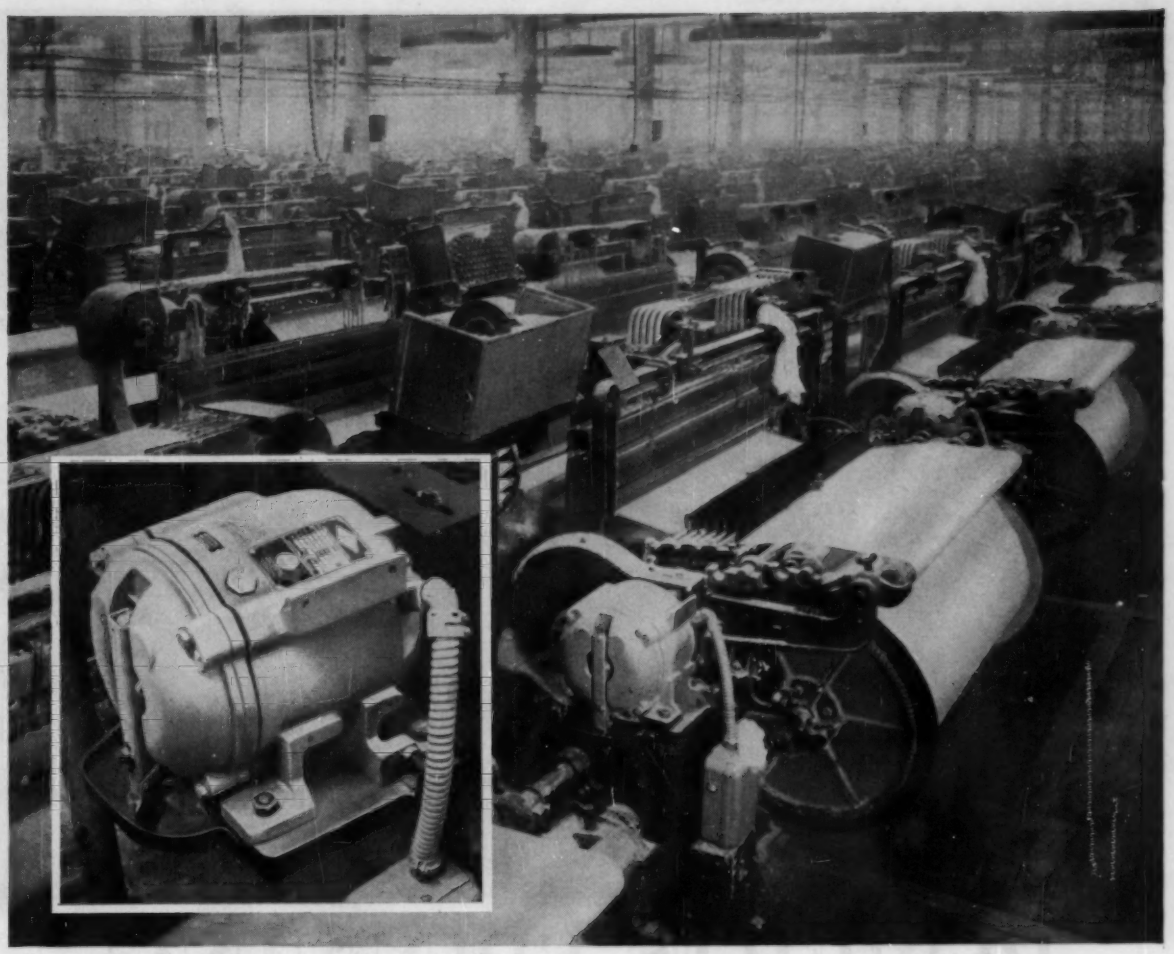
Yarn—1/20s to 1/26s worsted
Grade—58s or 60s
Knit—1x1 rib
Wales—20 per inch
Courses—32 per inch
Weight per sq. yd.—10 to 12 oz.
Weight per garment—12 oz.
Weight per dozen—9 lbs.

LT. J. J. ANDERSON, S.C., USN
Research & Development Officer
U.S. Navy Clothing and Textile Office
3rd Ave. and 29th St.
Brooklyn 32, N. Y.

RECAPS AFFECT TIRE-CORD SALES

Dear Editor:

In the Textile Business Section of the October issue of TEXTILE WORLD p. 18, there is an item that says nylon



AT CONE MILLS

DIEHL transmitters improve product quality

Three hundred Draper looms powered by the latest type DIEHL Power Transmitters were recently installed as part of an important new modernization program at Cone Mills Corporation's Minneola Plant, Gibsonville, N. C., with most satisfactory results in the improvement of loom performance and product quality.

DIEHL Power Transmitters were developed especially for Draper looms, and feature a fast, positive clutch-brake mechanism combined with an inverted type motor which provides high inertia without need for a separate flywheel. This design produces a constant steady pull for more efficient weaving and better quality greige goods, in the opinion of a plant official. "Increased efficiency of looms will be joined by lower operating costs because of the combination of Draper X2 looms and DIEHL Transmitters," he said. The looms now run at 186 picks per minute.

Cone Mills plant officials are favorably impressed with the positive action of the clutch-brake mechanism, the pinion driving shaft construction which eliminates the thrust bearing on the loom, the speed and ease of removal and replacement of the transmitter for inspection and servicing, the totally enclosed housing design which protects against weave room lint and fly, and the negligible maintenance and down-time costs.

DIEHL Power Transmitters can increase production and efficiency—at lower operating costs and less down-time—in your mill. Specify them for your looms.

DIEHL MANUFACTURING COMPANY
Electrical Division of
THE SINGER MANUFACTURING COMPANY
Finderne Plant, SOMERVILLE, N. J.

☐ Please send me Consolidated Motor Catalog and Price List No. TW-12 3540

☐ Please send me Textile Motor Bulletin No. TW-12 3526

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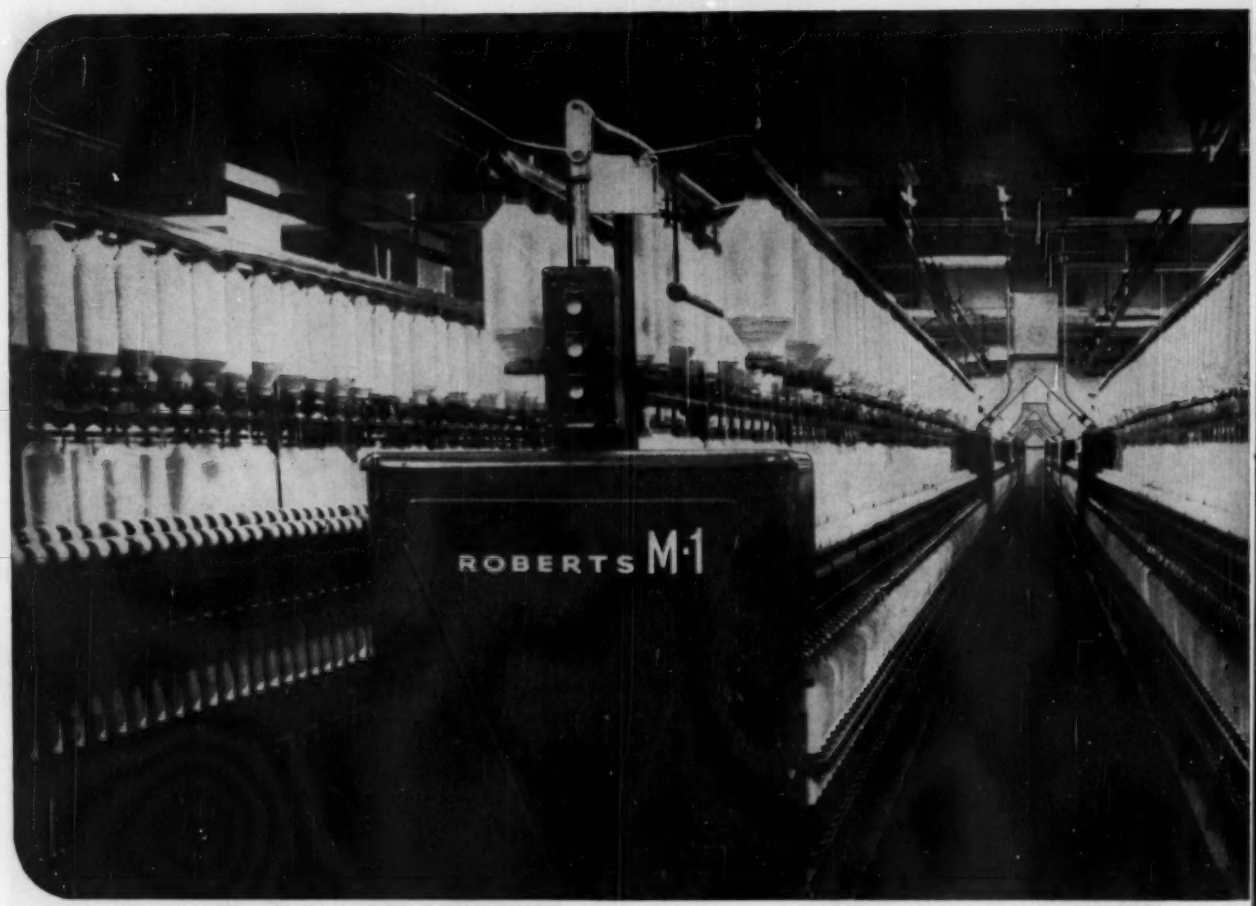


ROBERTS SPINNING

Today's standard for production, yarn quality and investment

Roberts Spinning is setting today's standard for comparison in high drafts, package sizes, roving bobbin sizes, front roll speeds, ends up, yarn break factor—and at the lowest investment cost per spindle.

TRIED AND PROVEN. The Roberts M-1 Spinning Frame is simple and straightforward, free from radical innovations or gadgets. Its design has already been tried and proven in many successful applications. It embodies all the ball bearing features most wanted in a modern spinning frame, giving highest production and lowest maintenance.

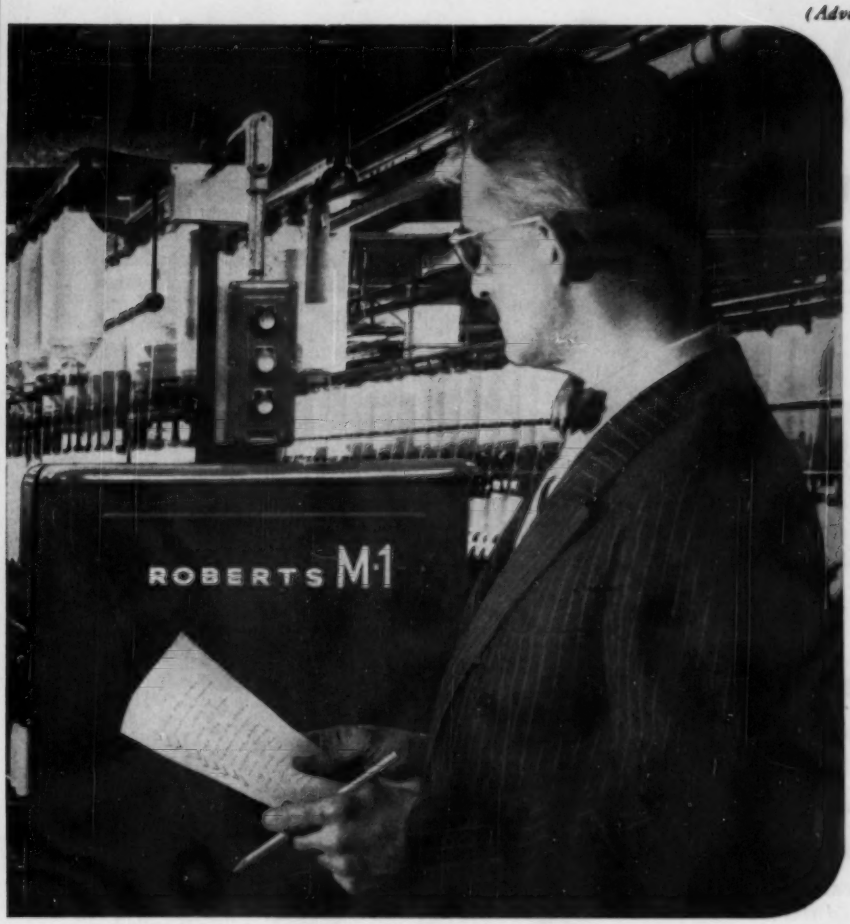
ROBERTS DRAFTING. Roberts Double-Apron Drafting produces highest break factors, best yarn evenness and lowest ends down in a range of drafts from 10 to 60, for yarn numbers from 2's to 100's, in cotton, synthetics with staples up to 3 inches long, or blends.

LARGE PACKAGE FLEXIBILITY. One basic model of the Roberts M-1 Spinning Frame is adapted to run warp bobbins with lengths from 10 inches to 12 inches as well as filling quills. Standard gauges from 3 inches to 4½ inches can be arranged to employ the maximum desirable ring size suitable for the yarn number and twist constant.

RUGGEDNESS WITH SIMPLICITY. The frame chassis is of rugged construction. The working motions use ball bearings for every turning and oscillating motion where practical. The all-ball-bearing head design is outstanding in its simplicity and flexibility. All gears in the head are hardened and have one pitch, one width, one bore and one keyway, making them completely interchangeable. Greased-for-life bearings are used in the head and all plain bearings and studs are eliminated. Draft and lay constants are adjusted simply over the complete range of yarn numbers.

STANDARD FEATURES. Standard equipment includes Roberts Ball Bearing Spindles, Roberts built-in UnitVac Suction Cleaning. Roberts AeroCreels are available in every desired package size, single or double.

(Advertisement)



Part of a spinning room in a mill with over 100 Roberts 25-inch Spinning Frames.

ROBERTS SPINNING AVAILABLE IN 3 FORMS PROVIDES MODERNIZATION AT LOWEST COST

The cost-cutting, performance, and quality features of Roberts Spinning can be obtained through changeovers to the mills' existing spinning frames, or through rebuilt frames supplied by Roberts, as well as Roberts M-1 Spinning Frames. Roberts Proposals for Spinning Modernization provide comparison on these 3 methods.

CHANGEOVERS to the mills' existing machinery can include drafting systems, spindles, creels, suction cleaning, tape drive, gearing, or any combination of these to provide the maximum return for minimum expenditures. Performance equal to new can be built into mills' existing machinery if desired in every manner and form.

ROBERTS MODEL 55-R REBUILT FRAMES provide complete new spinning performance making use only of non-functional support members of older frames, thus affecting a substantial savings and taking advantage of the all-new spinning performance and features identical to all-new frames.

ROBERTS M-1 SPINNING FRAMES are excitingly new from the ground up, with all ball bearing features. They are available in 39 inch, 36 inch, and the space-saving 25 inch widths.

ROBERTS COMPANY
SANFORD, NORTH CAROLINA

ROBERTS SPINNING NEWS

TOP ROLL SUSPENSION USES BALL BEARINGS IN ALL THREE LINES

The Roberts Ball Bearing Top Roll Suspension System uses double-row ball bearings in front, middle and back lines and incorporates many other important design advantages.

Cots have ½" hole diameter, revolve together making lap removal simpler, and are buffed on standard equipment, without attachments. Full length revolving clearers are used.

Front and back rolls are interchangeable making sequence buffing possible.

The double-row bearing raceways are ground directly into ½" shafts. Bearings are grease-packed for life and a 2-piece labyrinth seal protects them from lint entrance and roll picker damage.

The system has controlled self-alignment. Conventional deadweighting or new spring weighting is optional.

An alternate arrangement also available employs a ball bearing top roll and special suspension on the front line only with Roberts Cap Bars and solid top rolls on middle and back top rolls.

Roberts also continues to offer its No-Oil Cap Bar and Saddle system for all three lines, now installed in more than 2½ million spindles.

ROBERTS M-1 SPINNING FRAMES MADE IN THREE WIDTHS

Where it is desirable to match frame widths already in the mill, Roberts makes and incorporates all of its design features of its new frames in standard 36 and 39 inch widths. All the ball bearing features and details are built into these wider frames.

The Roberts M-1 25 inch wide Spinning Frame permits 5 frames instead of 4 in a 25 foot mill bay, retaining 30-inch aisles and increasing yarn production 25% in the same place.

Creel designs have been arranged for the frames to handle 12 by 7 roving packages on as low as a 3-inch gauge frame. 10 by 5 double creels are designed for 3½ inch and larger gauges. In all cases, widths and heights of creel are not excessive with consideration being given for ease of creeling for the operators.

ROBERTS "TURNKEY" ERECTION SERVICE

Roberts "Turnkey" Erection Service is available in all 3 modernization arrangements: buying complete new spinning frames, buying modernized frames, or changing over the frames on your floor. In each arrangement, Roberts is entirely responsible for installation and performance.

For more data, write this page number on Reader-Service card. →

it's a smooth operation from start to finish . . .

when you use Clinton® starches

Smooth warp sizing. Smooth finishing. Yes, from the minute you start using Clinton starches you'll experience a smooth operation all down the line.

Clinton starches are widely used for warp sizing. They increase strength . . . smooth fibers so abrasion is reduced . . . resulting in smooth running warps. And that's only the beginning. At the finishing operation, Clinton starches provide proper hand and body to your fabrics.

So, from start to finish . . . from quisette . . . choose starches by Clinton.

. . . and remember technical service in connection with your specific problems is available without obligation

Quality products

FROM THE WORLD'S CORN CENTER

CLINTON

CLINTON CORN PROCESSING COMPANY
CLINTON, IOWA

Our 50th Anniversary Year—1907-1957

tire cord is in short supply, that the major nylon-tire-yarn producers are rushing expansion programs, and that they hope to capture the entire tire-cord market.

When an estimate is made of the potential market for nylon tire cord, it seems that an important factor is being overlooked. That factor is the increasing popularity of recapped tires.

Cotton tire cord will usually last just about as long as the original rubber tread. Rayon cord will hold up for several recappings. Claims for nylon tire cord are that it will last indefinitely.

Isn't there the possibility that the replacement tire market will be eliminated? Won't motorists have the original tires recapped three or four times, which will cover the average life span of an automobile?

Since no tire cord is used in the recapping process, the tire cord producers stand to lose a big hunk of market by switching to nylon if the present trend toward recapping continues.

I. J. G.

Greenville, S. C.

CORRECTION

In our September issue, p. 146, an error appears in the slasher-drying-rate table. Instead of "Four cylinders (15 ft.)" in the seventh type of slashers listed, the description should be "Four cylinders (5 ft.)."—EDITOR

OUR COVER

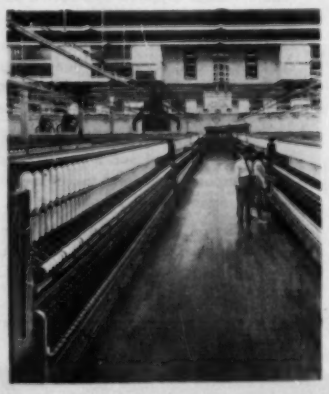


Photo by Coxe Studios, Greenville, S. C. See Modern Plant Lighting, page 97.

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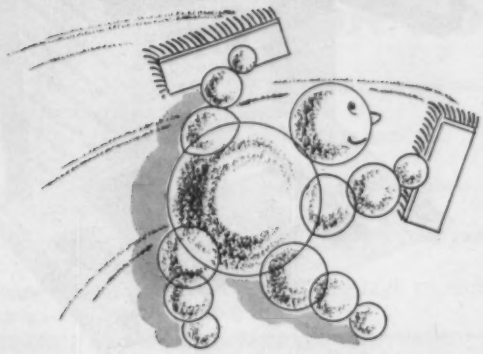
A New, More Powerful Detergent!

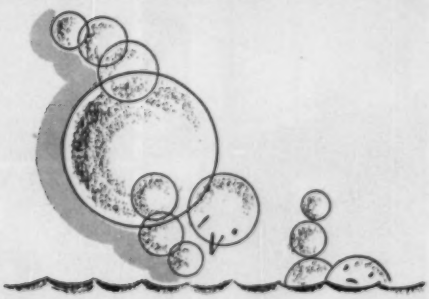
SYNTHRAPOL PWS



Action

More action in every drop
than ever before

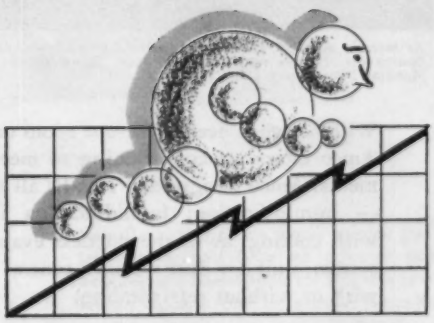
SYNTHRAPOL PWS



Versatility Plus

Fast wetting — Fast rewetting
Excellent detergency

SYNTHRAPOL PWS



Economy

A little goes a long, long way

Request Technical Bulletin 132

AHCO PRODUCTS *Quality-Integrity*

ARNOLD, HOFFMAN

ARNOLD, HOFFMAN & CO., INC. • EST. 1815
OFFICES & TECHNICAL SERVICE LABORATORIES
PROVIDENCE, ATLANTA, CHARLOTTE, TETERBORO
ASSOCIATED WITH IMPERIAL CHEMICAL
INDUSTRIES, LIMITED • LONDON, ENGLAND

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30 YEARS with CHICOPEE

Widely known for its fine textile products . . Chicopee Manufacturing Corporation appreciates that fine products require the best manufacturing equipment and air conditioning systems.

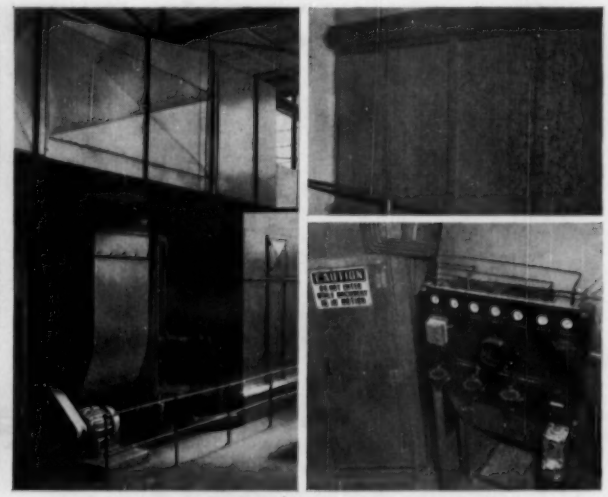
As Chicopee has grown, progressed and modernized, it has relied predominantly on Amco to satisfy each of its air conditioning needs with the system best suited for each particular process.

1927

In 1927, Chicopee humidified its Gainesville Cotton Mills with Amco Duplex Humidifiers — high-duty, spray type humidifier with motor-driven fans.

1957

In 1957, *30 years later*, an Amco Dry Duct system was installed in a weave room addition at Walhalla, S.C.



As recently as 1955, Chicopee installed Amco Central Station systems in its Bensenville, Illinois and Milltown, New Jersey plants, where the famous Masslinn Non-Woven Fabrics are produced.

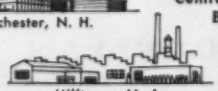
Amco systems installed in Chicopee plants from 1927 to 1957

Chicopee Falls, Mass.

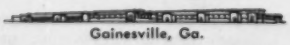
Bensenville, Ill.

Walhalla, S. C.

Manchester, N. H.



Milltown, N. J.



Gainesville, Ga.

Straight Humidification
Bensenville, Ill.; Chicopee Falls, Mass.; Gainesville, Ga.; Manchester, N. H.; Milltown, N. J.

Evaporative Cooling
Chicopee Falls, Mass.; Manchester, N. H.; Walhalla, S. C.

Dry Duct
Walhalla, S. C.

Central Station with Air Washers
Bensenville, Ill.; Milltown, N. J.

Whether your need is for one room or an entire mill, Amco offers air conditioning to meet your requirements. Amco designs and installs all types of systems — humidification; humidification in combination with cooling, as in the ductless evaporative cooling system; unit dry-duct systems; central station systems, with or without refrigeration.

Amco engineers will be glad to advise you on any air conditioning problem — without obligation.

AMCO
AIR CONDITIONING SYSTEMS

AMERICAN MOISTENING COMPANY • CLEVELAND, NORTH CAROLINA
BRANCHES: ATLANTA, GA. • BOSTON, MASS. • CAMDEN, N. J. • PROVIDENCE, R. I. • TORONTO, ONT.

ND FACTS

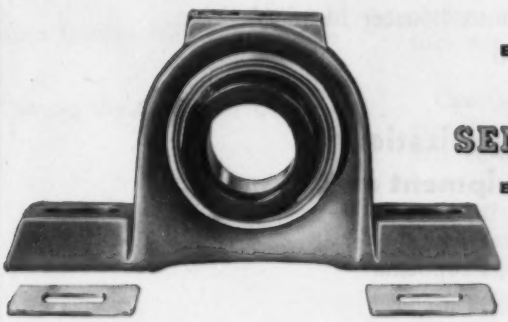
NEW DEPARTURE PILLOW BLOCKS— BUILT FOR LOWEST MAINTENANCE

- New Departure adapter ball bearings are sealed and lubricated for life.
- Design is compact and rigid—fits easily in limited space.
- No grease nipples or other protruding lubricating fixtures needed.
- Pillow blocks are easily mounted without need for any special tools.
- New Departure ball bearings are high capacity, precision-built for long life.
- Bearing and block surfaces are spherical to accommodate any misalignment.
- Thirty-two shaft sizes, $\frac{1}{2}$" through $2\frac{15}{16}$", for wide variety of applications.
- Interchangeable with most other makes of pillow blocks.

Bearings are easily applied to shafting and are positively locked in position with eccentric cam locking collar and set screw.

Elongated bolt holes designed to accommodate practically every type of spacing for hold-down bolts.

Mounting pads are furnished with each New Departure Pillow Block to assure easy interchangeability with all pillow blocks having a high base-to-center dimension.



EQUIPPED WITH

BALL BEARINGS

New Departure Pillow Blocks employ performance-proved Type AE adapter ball bearing with Sentri-Seals for long-life protection against dirt or grease leakage.

Send for Catalog PBC

1908–1958
GM
FORWARD FROM FIFTY

NEW DEPARTURE
DIVISION OF GENERAL MOTORS, BRISTOL, CONN.
NOTHING ROLLS LIKE A BALL

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Parks-Cramer®

Certified Climate® for Textile Mills

Atomizer Humidification

—Gradumatic,® Turbomatic,® GraduVac

Automatic Airchangers®

—dry duct, with direct humidification

Ventilation and Vapor Absorption

Central Station Systems

—air washer type, with or without booster humidification, heating, filtering, refrigeration

Complete new systems, or reorganization of present equipment and capacities

Surveys, Budgets, Proposals

WRITE
for list of recent installations and how mills have benefited.

Parks-Cramer Company

FITCHBURG, MASS CHARLOTTE, N C. ATLANTA, GA.

407

TEXTILE BUSINESS

Textile World

DECEMBER • 1957

THIS MONTH'S HIGHLIGHTS

Easier Credit Terms

•

Mills Caught in Squeeze

•

Defense Climate To Rule

•

C. & A. Gets Into the Black

•

Fight Due on Trade Bill

•

Trouble Spots for Carpets

•

Auto Textiles Face Competition

•

Chasing the Consumer Dollar

Easier Credit Terms— Good for Future Moves

The Federal Reserve Board's step to ease the credit situation last month was viewed by the textile industry as a definite move in the right direction.

Member banks were authorized to drop the discount rate from 3½% to 3%, a move that laid the groundwork for trimming the cost of borrowing money by businessmen and consumers.

Business trends aren't going to be changed in any radical way by the board's action, but lower rates produced an immediate bullish effect.

Right after the board's announcement, major textile shares on the New York Stock Exchange showed gains ranging from ⅛ to ⅝ but eased off again on reports of lagging business.

•

But last month textile men were looking beyond the immediate situation.

Important was the fact that Federal Reserve policy suddenly shifted from restraint to easier money. This shift is an admission by the money experts that business has stopped moving sideways and has turned into a downtrend.

Big question is whether the change in credit policy will be followed through by a loosening of money supplies so that the cut in borrowing costs can be extended to interest rates banks charge on loans to business firms and consumers.

Such action is needed if the board's move is to bring about a change in the business climate. Otherwise the lower rates could turn out to be only a mild gesture.

Caution must be followed over the next few months as far as planning future business moves are concerned, market observers pointed out.

But if lower rates spread and money is easier to get, certainly textile men will be more favorably disposed to think again in terms of added modernization and expansion.

However, the Federal Reserve is not noted for major policy changes. It feels its way slowly, taking its cue from what's happening in the economy.

Thus an upsurge in business could bring a quick return to higher discount rates.

•

Many textile men regarded the old rate as too high all along and expected a reduction sooner or later. But the cut, when it came last month, was a complete surprise as regards timing.

It may take anywhere from six to nine months before any easing of credit can take hold as far as business activity is concerned. And businessmen aren't looking for any sudden drift to lower interest rates.

Although a 3% rediscount rate cannot support a 4½% prime

rate now being charged top business borrowers, banks today are in a strong position.

Most banks have out on loan more of their deposits than they would normally like to have. And many of the big banks aren't borrowers at the Federal Reserve banks just now.

But if nothing happens to move the rediscount rate back up, open-market rates paid by business for money is bound to ease over a period of time.

One leading textile financial executive summed up the situation when he said, "The lower rates should do us some good; they certainly can't do any harm."

Mills Caught in Squeeze— Sales Up, Profits Down

The squeeze of rising costs on mill profits continues.

Earnings reported last month by a representative group of mills reflected generally unsatisfactory market conditions.

Third-quarter earnings were off from a year ago in most cases. One study involving a selected group of 16 textile concerns showed third-quarter earnings at $8-million this year against $10.9-million in the same period a year ago—a 26% decline.

Here is a digest of earnings reports so far this year which cuts across a variety of 11 textile operations:

	Period	Net Income 1957	Net Income 1956	Earnings per common Share 1957	Earnings per common Share 1956
Avondale	Year Aug. 31	$1,407,361	$1,406,658	$2.12	$2.12
Berkshire Hathaway	Year Sept. 30	*3,250,000	922,548	.....	0.41
Blumenthal	9 mos. Sept. 28	61,213	59,555	0.10	0.10
Burlington	Year Sept. 28	15,362.000	15,265,000	1.64	1.63
Cone	9 mos. Sept. 30	3,280,665	4,271,752	0.91	1.20
Dan River	9 mos. Sept. 28	3,763,747	3,287,313	0.81	0.97
Kendall	36 wks. Sept. 7	2,399,000	3,013,000	2.25	2.85
Lowenstein	9 mos. Sept. 30	2,735,519	4,885,773	0.96	1.70
Mt. Vernon	9 mos. Sept. 30	623,000	1,018,000	0.82	1.34
Riegel	Year Sept. 28	2,538,000	3,325,917	2.62	3.48
Wayne Knitting	9 mos. Sept 30	501,346	602,340	1.33	1.59

*Loss

But sales for most mills are running ahead of a year ago.

Lowenstein, for example, boosted sales for the first nine months of this year to $344-million against $330-million a year ago. Yet look what happened to earnings.

Adjustment of production should produce better results in the months ahead (see p. 20), and the fourth quarter is generally the best earnings period for the textile industry. Some manufacturers are confident that billings will be at a high level for the fourth quarter with earnings exceeding the results of any prior quarter this year.

Denim Market Improves As Shipments Increase

A better market position in denims has permitted mills to maintain prices at current levels for deliveries through the first quarter of 1958.

Prices are unchanged at 37½¢ a yard for the 10-oz. indigo, and 39½¢ a yard, vat dyed.

Denim production, hit by a rash of disfavor, has sagged; but mills have been able to hold the price line for over two years.

•

Mills produced 147-million yds. of denims in the first half of this year compared with 188-million yds. in the same period a year ago.

Looms on denims were cut from 12,500 a year ago to 10,500 this year as mills moved to align output with a shrinking market.

Shipments in recent months have exceeded production, and mills look for further improvement next year.

Heavy-Denier Lofted Yarns Get Price Boost

Prices for heavy-denier lofted continuous-filament yarn were increased 5¢ a lb. last month.

Higher cost of raw materials, labor, and transportation were given as the reason for the price increases, which cover both rayon and acetate types.

New prices range from 63¢ a lb. for 5,300-den. natural to 67¢ a lb. for 2,200-den. natural. Prices are proportionately higher for solution-dyed yarns.

Hit by the higher yarn prices were carpet, upholstery, and drapery mills.

•

Higher prices were also set on white crimped-rayon-staple fiber for carpet yarns.

The new level is up from 33¢ a lb. to 34¢ a lb. for the 8- to 15-den.

But prices for 3-den. to 5.5-den. rayon carpet staple remain unchanged at 32¢ a lb.

A similar sales and earnings pattern was being followed by man-made-fiber producers.

Here are the results for four producers to date:

Net Income	Period	1957	1956	Earnings per common share 1957	1956
American Viscose	9 mos. Sept. 30	$7,482,000	$10,649,000	$1.47	$2.09*
Celanese	9 mos. Sept. 30	8,546,368	8,901,652	0.86	0.92
Industrial Rayon	9 mos. Sept. 30	946,559	4,109,036	0.51	2.22
Owens-Corning Fiberglas	9 mos. Sept. 30	7,301,967	7,922,685	1.11	1.26

(*) Includes 13¢ representing nonrecurring interest received on a refund of income taxes

But man-made-fiber producers raised rayon-staple prices several months ago, and prices for noncellulosic fibers and yarns are firm. This trend is expected to have a beneficial effect on future earnings.

Defense Climate To Rule

Business was reading long-term implications into President Eisenhower's new defense program as outlined last month.

The President's action in signaling for higher defense spending sealed all hope for any major tax reductions next year.

In fact there was a hint of higher taxes, and some observers went so far as to predict the return of a Federal deficit for fiscal 1959.

And Eisenhower's move to mobilize scientific and military resources in the face of Russia's sensational exploits in satellites will be an important business influence for months to come.

Business will be called on to support a budget adequate for national security. Such a budget will reflect not only necessary defense and mutual-security requests but also the curtailment of some less-essential programs not in the defense area.

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Actually the rise in defense spending next year won't really be steep; the top range of the new budget is expected to be under $40-billion for defense. But any increase at this time throws talk of general tax relief right out the window.

Important to business had been the prospect of a cut in both individual and corporate income taxes and the possibility of excise-tax reductions next year.

But 1958 is a political year with control of the House and Senate at stake. At best, Congress might authorize a limited tax-change bill that wouldn't cost the Treasury too much in revenue.

Eisenhower wants spending held down on domestic projects in order to shift more dollars for defense.

Right now it looks as if money may be syphoned away from farm subsidies, housing, public works, and veterans' benefits.

Fibers Battle It Out In Sweater-Yarn Field

A lively battle is developing in the sweater-yarn field.

New types of man-made fibers are challenging Orlon's grip on the sweater market, and developments last month indicated that the newcomers were making fair headway.

Ban-Lon modified-filament yarn of either nylon, Dacron, or solution-dyed nylon already has the door ajar and hopes to open it wider.

Throwsters estimate that Ban-Lon now has between 15% and 20% of the sweater-yarn market, and the yarn is being consumed at a rate 60% ahead of a year ago.

By contrast, Orlon, which had 70% of a 6.3-million-dozen-sweater market in 1955, is down to a 50% share this year. Wool, which can be expected to come out with 24% of this year's sweater market, will give other fibers a run for their money in 1958.

Ban-Lon got a toe hold on the sweater market by getting there early with a big promotional effort. Now other modified-filament yarns are moving in.

And yarns spun from the newer man-made fibers like Acrilan 16 will exert an influence on the market.

Man-made fibers like Darlan, Creslan, and Zefran, not yet available, have their eyes on the sweater-yarn field.

Man-Made-Fiber Production Up in Third Quarter

Man-made-fiber production in the third quarter of this year totaled 439-million lbs., a small increase over second-quarter output but 14% above third-quarter production last year.

Latest quarterly total, according to the Textile Economics Bureau, comprised 273.4-million lbs. of rayon and acetate, 134.2-million lbs. of noncellulosic fibers, and 31.3-million lbs. of textile glass fiber.

New quarterly production records **were set for both the noncellulosic and glass types.**

Curbs on Production Aimed at Better Prices

Another drive to cut production developed in a good part of the industry last month.

Most cotton gray-goods mills, as well as some man-made-fiber mills and a few wool mills, shut down over Thanksgiving week end.

And this month most of the same mills will close during Christmas week.

So once again the industry voluntarily moves to curb overproduction with the hope of bolstering sagging prices.

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Last month's curtailment began as an effort to get the price of the basic 80-square print cloths off the ground in the expectation that other constructions would follow.

Prices stiffened slightly in response to news of production cuts.

And finished goods were stronger when mills moved prices up on certain twills, flannels, percales, and colored-yarn goods.

Mills took more than 3,000 looms off plain print cloths earlier this year and succeeded in cutting production from 907-million yds. in the first six months of 1956 to 816-million yds. in the first half of this year.

Production of all types of broad woven cotton fabrics for the first nine months of the year is 7% below the first nine months of 1956.

But inventories persisted in climbing until they hit record levels of 5.7 weeks production by the end of the summer compared with 4.6 weeks a year earlier.

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Then cotton-cloth demand failed to develop as expected after Labor Day, and prices continued to slide.

By October, mills found themselves with margins approaching the lowest levels since May, 1954.

Right now nobody can tell how much print cloth will be taken out of the market or the extent of the effect on prices.

But it was agreed that any move to halt accumulation of inventory is a good one.

C. & A. Gets Into the Black

Collins & Aikman Corp. is back in the profit column after a shaky period.

Long recognized as the dominate factor in automotive fabrics, C. & A. and its competitors faced a painful market adjustment several years ago when the automobile industry suddenly shifted from pile fabrics to flat goods and other types of interior trim.

Quick action was needed to keep the company on top, and management came up with these answers—

- Unprofitable operations were closed in the North and modern properties built in the South.
- Product diversification was pushed into such fields as pile cloakings, toy plushes, and carpeting.
- Decentralization resulted in formation of the Automotive Div., Cavel Div., and Yarn Div.
- Traditional fields in yarns, transportation fabrics, furniture fabrics, auto upholstery, and industrial fabrics were strengthened with new products.

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Results have been encouraging.

Last month the company revealed it made a profit of $274,782, or 49¢ a share, on sales of $18,523,544 for the six months ended August 31. This record compares with a loss of $287,148 on sales of $20,132,785 in the same period a year ago.

Reduction of 8% in sales came mostly from the discontinuance of worsted-fabric weaving at Bristol, R. I., earlier this year.

Bristol had been losing money; and for the 12 months prior to its sale to Cobar Industries, losses were over $500,000.

The big plant in Philadelphia is gone, and new facilities in North Carolina at Siler City and Albermarle rank with the best in the industry.

C. & A. has consolidated its position in line with market trends, and profitable operations loom ahead if business in general holds up. Sales were very good in September and October; so further profits in the third fiscal quarter seem assured.

•

Looking over the company's areas of interest, 1958 could be a pretty good year.

Right now auto production is expected to top 6-million units again. Furniture is looked upon to hold its own. Pile cloakings are expected to be good, and the company has new imitation-fur fabrics to provide the impetus.

C. & A. looks to its new 100%-nylon carpeting with foam-rubber backing to make substantial headway next year.

The company's new president, Ellis Leach, is a practical manufacturing man who came over from Timme Corp. about a year ago.

"Our plants and production facilities are modern and well maintained," he points out, "and we should be able to take advantage of improvement in business conditions when they appear."

Mr. Leach is encouraged by the company's strong financial position and points to C. & A's ratio of current assets to current liabilities of over 5 to 1.

Administration's Trade Bill To Face Lively Opposition

Congress returns next month for a session loaded with significance for the textile industry.

Hottest item on the legislative agenda is the Trade Agreements Act, up for review and extension in face of the most powerful protectionist opposition in a quarter-century.

The textile industry, long in the vanguard of protectionist forces, has been joined by others hurt by a rising flood of imports.

Because the Act is the foundation for over-all national trade policy, debate will broaden to cover pending bills and new proposals dealing with such related matters as:

- Specific tariffs and quotas for a number of selected domestically produced items, including wool fabrics
- Tightening the antidumping laws that include provisions important to producers of rayon-staple fiber
- Defense-essentiality procedures under which wool-fabric producers have applied to ODM for additional import restrictions on the ground that imports are threatening an industry vital to national security
- Cotton price-support programs
- U. S. membership in the international Organization for Trade Cooperation to police pacts under the General Agreement on Tariffs and Trade
- Japanese voluntary curbs on cotton-textile exports
- Country-of-origin proposals for labeling imported fabrics

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The White House is determined to bid for a five-year extension of the trade law, instead of the usual three. (Last time it was extended for two years and expires next June 30.)

And the administration will renew its plea for membership in OTC.

Protectionist forces say they have the votes to defeat the reciprocal trade law itself. But it seems likely the Administration will give way on some points in order to save the statute.

Points of compromise may well involve lesser legislation covering trade and tariffs, rather than the trade law exclusively.

Despite a general economic dissatisfaction with quotas, some new ones may be written into law. And others may be established through ODM's new defense-essentiality provisions.

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Last month nearly every branch of the textile industry was rallying behind various measures designed to give better protection to U. S. manufacturers.

These new measures would include a congressional review of all Tariff Commission findings, new quota-setting authority for the commission, and reduction of the President's authority to negotiate tariff cuts through GATT.

The fight will largely hinge on action of the House Ways & Means Committee, which has both liberal-traders and protectionists in its membership.

Hosiery Shipments Expected To Top Last Year's Figures

Total shipments of hosiery showed a healthy upswing in the third quarter.

Shipments for the first nine months came to 108-million-dozen pairs, about even with the same period a year ago.

But the gain for the third quarter represented an increase of 3-million-dozen pairs over last year to wipe out the effects of a disappointing trend during the first half of the year.

The National Association of Hosiery Manufacturers reports that shipments began to rise in September.

Indications last month pointed to a continuing healthy pace, and hosiery manufacturers look for an overall gain for the entire year.

Unions Off on New Drive For Southern Membership

The unions are off again in their drive to increase membership in Southern mills.

Latest target of the Textile Workers Union of America, CIO, is Gaston County, N. C., with its 30,000 textile workers. All but 1,000 do not belong to a union.

The current campaign is led by Boyd Payton, veteran Southern director of TWUA-CIO.

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Right now the union regards Textiles, Inc., with 11 plants and 3,000 employees, as one of its prize plums.

Nylon Enters New Market

A new outlet for nylon tire yarn is building up in Detroit.

New air-suspension assemblies now offered as optional equipment on some 1958 passenger-car models take upwards of one pound of nylon yarn per car.

Carpet Production Booms— But Trouble Spots Rise

Carpet and rug mills are expected to repeat their 1956 peak production of 114-million sq. yds. of carpet this year.

But the picture is clouded by a slide in dollar volume from last year's all-time high of $600-million, plus a decline in earnings for most mills.

Carpet manufacturers attribute this year's dip in dollar-sales volume to an increase in production of lower-priced tufted carpets. And the major reason for shrinking profits is blamed on an increase in imports of machine-made carpets.

Here's the record so far this year for four carpet and rug mills:—

	First nine months			
	1957		1956	
	Sales $(000)	Net profit per share	Sales $(000)	Net profit per share
Mohasco	74,699	$0.56	76,393	$0.57
James Lees	55,437	3.02	55,267	3.44
Bigelow-Sanford	55,138	0.62	61,276	1.79
Firth	19,035	0.98	18.009	0.95

Manufacturers figured last month that 1957 production of tufted carpets will reach 55-million sq. yds., up about 5-million sq. yds. from 1956. Output of woven carpets will hit about 59-million sq. yds., a decline of about 5-million sq. yds.

Tufting has come up fast and now accounts for nearly half the carpeting produced in the U.S. Improved manufacturing techniques as well as new yarns have helped tufted carpets to whittle away at woven-goods sales.

●

U.S. carpet manufacturers have been watching carpet imports rise at an alarming rate since July of this year, when a new tariff cut went into effect.

When the volume of imported carpets edged up last month to 11% of U.S. production, carpet men decided it was time to seek relief under the escape-clause provisions of the Trade Agreements Act.

Application for relief has been limited to wilton and velvet classifications because they make up the bulk of imports. (At one time this year wilton imports were running at the rate of 38% of U.S. yardage.)

Total imports for 1957 are expected to reach about 4.7-million sq. yds., nearly equal to the anticipated decline in U.S. woven output for this year.

Carpet men can't tell how far they'll get with the Tariff Commission. But pointing to the wool-fabric quota invoked by the President, they hope for favorable treatment sometime next year.

Government Wants Blue Serge

Wool mills are due for a tidy slice of government business next year.

Last month the Military Clothing & Textile Supply Agency announced it would seek bids on 2-million yds. of 18-oz. blue serge, with deliveries spread from May through October.

Most mills are eager for business, and highly competitive bidding is expected.

Last big government order for wool goods covered 3-million yds. of 16-oz. green serge issued early this year. Deliveries began last June and ran out last month.

Mills on this last order included Ames Textile Corp., Bachmann Uxbridge Worsted Corp., Samuel Hird & Sons, Pacific Mills, Southern Worsted Mills, and J. P. Stevens & Co.

Cotton-Crop Forecast Cut

Cool, rainy weather has further reduced the size of the cotton crop.

The government's November estimate is now down to 11.8-million bales, compared with a forecast of 12.4-million bales in October and 12.7-million bales in September.

The increasingly poor forecast for the 1957 crop output puts the harvest 11.4% below last year's level of 13.3-million bales.

Last month's indicated yield per acre was cut to 413 lbs., compared with an estimated 446 lbs. in September and 435 lbs. in October. Last year's average yield was 409 lbs.

And the size of this year's crop could decline still further if bad harvest weather continues.

Only in the Southeastern states and California has the cotton outlook continued favorable. Latest reports showed California to be the only state in which ginnings were running higher than last year.

Most observers feel now it is not so much a matter of quantity of cotton produced as it is quality.

New Cars Give Textiles Stiff Competitive Battle

Auto manufacturers were in full stride last month working toward what is expected to be another banner year in 1958.

But competition between textiles, plastics, paper, and leather for auto-interior use is getting more intensified.

Here are some of the patterns that showed up last month as new-model production progressed—

- Wool goods can look forward to a better year in what seems to be a swing to conservatism among high-priced car buyers.
- Coated papers are making inroads. Example: Most Chevrolet and Pontiac models are using coated papers on door panels, replacing coated cotton drills and knitted fabrics.
- Nonwoven fabrics are gaining as a backing for vinyl plastic in auto-seat upholstery, giving stiff competition to knitted fabrics and broken twills.
- In spite of shifts, the ratio of plastic-coated fabric to regular upholstery fabric in 1958 cars should be about the same as in 1957 models.
- Tufted carpeting continues in importance. Ford, for example, now uses tufted carpets exclusively, citing good quality at lower cost as well as better scheduling of production shipments.
- Upholstery leather is slipping in spite of a big institutional-selling effort. Only 41 of the 1958 models will use leather, versus 47 last year.

The Consumer Dollar— Can Mills Get More of It?

A bigger share of the consumer dollar for the textile industry could be just around the corner.

With 40% of total fiber poundage going to the apparel industry (60% goes to industrial uses and home furnishings), any movement in textiles' share of the consumer dollar exerts an important reaction at the mill level.

Last month a market analysis showed that clothing is no longer getting less and less of the consumer dollar.

And consumer patterns indicate that the factors mainly responsible for clothing's decline have diminished to the point where its share in the dollar has stabilized.

The ratio of 6.1% representing clothing expenditures in relation to total income has been maintained for over two years now.

Current predictions are that the factors that depressed textiles during the past 10 years (spending on housing, autos, home appliances, and similar durables) will decline in importance.

Result: Clothing expenditures could become more important in the family budget.

Wool Stocks Are Running Low— Rise in Imports Expected

Wool stocks are running low; so an increase in wool imports can be expected to show up soon.

Imports of dutiable wool for consumption in the first eight months of this year were almost one-third lower than last year, and nondutiable imports were 17% less.

In addition, Commodity Credit Corp.'s holdings of U. S. wool are way down, following substantial sales in the last few months.

Commercial stocks of wool are said to be just about in line with mill use.

But mills have been delaying forward buying because of the soft prices that have prevailed in foreign markets since late summer.

Shirts Top Cotton End-Use

Men's and boy's shirts consumed 595,000 bales of cotton last year to head cotton's end-use list.

Sheets were right behind with 569,000 bales, followed by drapery and upholstery fabrics at 567,000 bales.

Rounding out the top 10 end-uses for cotton in 1956 were men's and boy's trousers, towels, men's and boy's underwear, automotive uses, dresses, carpets and rugs, and retail piece goods, in that order.

Apparel took 43.5% of total cotton consumption in 1956, household fabrics took 33.6%, and industrial uses accounted for 22.9%.

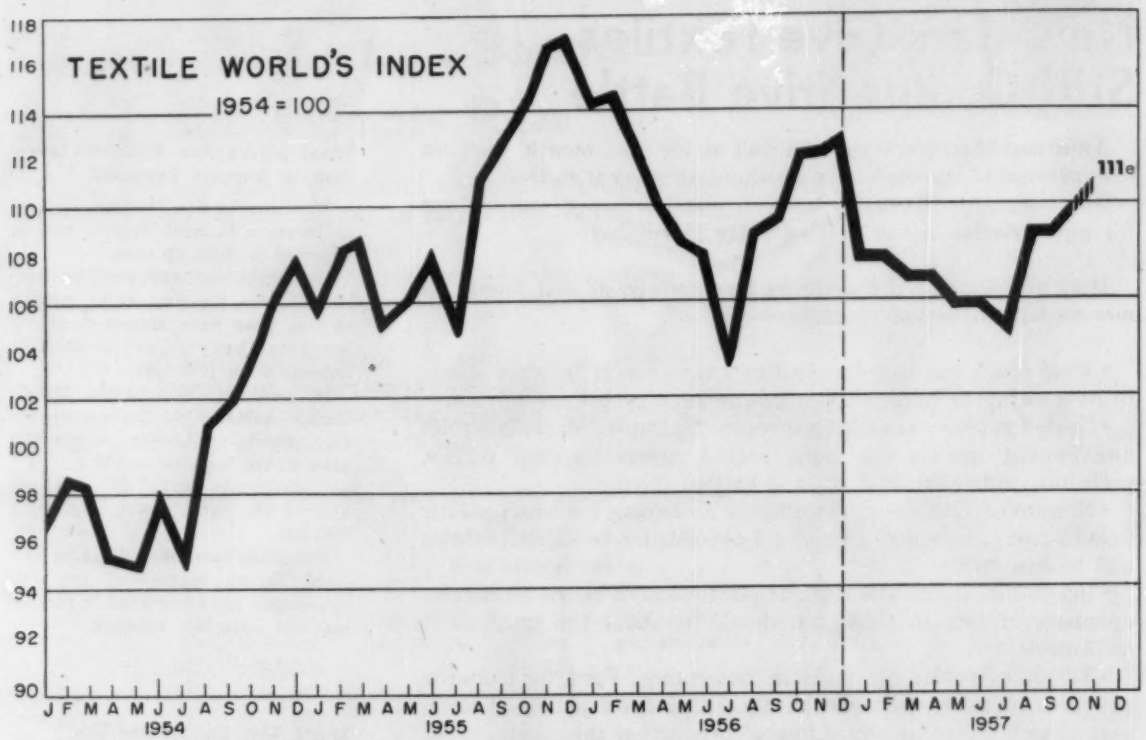
If present 1957 production ratios continue, sheets may oust shirts as the leading consumer of cotton.

Vinylon May Be Made in U. S.

TOKYO, JAPAN — Kurashiki Rayon Co. of Osaka hopes to sell Japanese rights on its newly developed Vinylon polyvinyl alcohol fiber to Air Reduction Co., New York City.

Under the proposed contract, a factory to produce Vinylon fiber would be built in the United States with an annual production potential of 15-million lbs.

Kurashiki, one of six Japanese plants making Vinylon, markets its product as a staple fiber called Cremona.



Index of manhours worked in the textile industry adjusted for changes in productivity

Textile World's Monthly Indicators

	Latest Month	Previous Month	Year Ago
Textile World's Index (1954 = 100)	**111**	**110**	**113**
Employment (thousands) B.L.S.	996.4	1,003.1	1,049.5
Production Workers (thousands) B.L.S.	905.3	911.8	957.9
Weekly Earnings B.L.S.	$59.65	$59.04	$59.75
Hourly Earnings B.L.S.	$1.51	$1.51	$1.49
Weekly Hours Worked B.L.S.	39.5	39.1	40.1
Production Index (1947–1949 = 100) F.R.B.	106	102	103
Wholesale Price Index (1947–1949 = 100) B.L.S.	95.1	95.4	95.3
Manufacturers' Sales (million $) Commerce	1,022	1,072	1,125
Manufacturers' Inventories (million $) Commerce	2,634	2,649	2,648
Inventories to Sales Ratio	2.58	2.47	2.32
Exports (Million $) Commerce	106.0	110.2	118.0
Imports (Million $) Commerce	78.8	86.3	89.3
Stock Price Index (1941–1943 = 10) Standard & Poor's	18.48	19.81	24.10
Failures (number) Dun and Bradstreet	3	3	9

National Economic Indicators

	Latest Month	Previous Month	Year Ago
Industrial Production (1947–1949 = 100) F.R.B.	142	144	146
Consumer Prices (1947–1949 = 100) B.L.S.	121.1	121.0	117.1
Wholesale Prices (1947–1949 = 100) B.L.S.	117.7	118.0	115.6
Population (millions) Census	169.3	169.0	166.2
Unemployment (thousands) Census	2.5	2.6	1.9
Employment (millions) Census	66.0	65.7	66.2
Personal Income (billion $) Commerce	345.6	346.6	334.1

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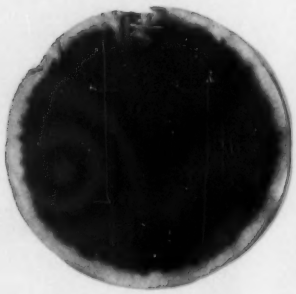

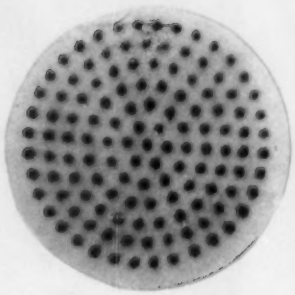

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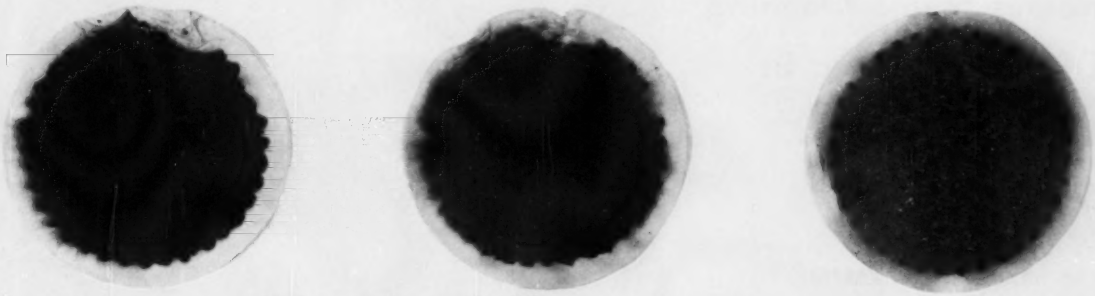
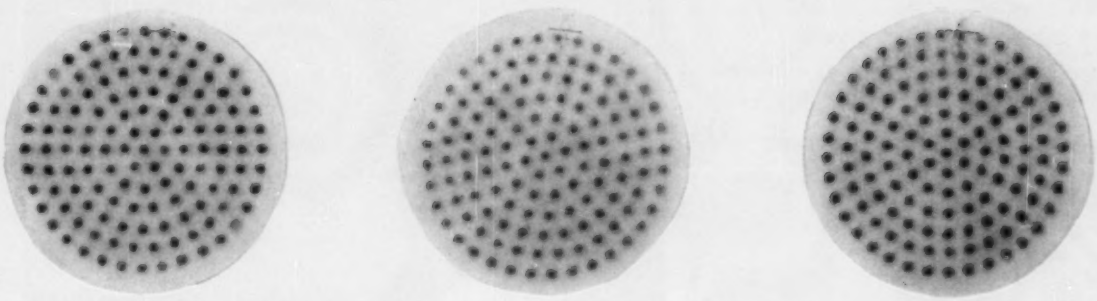


Ordinary unimproved vat dyes



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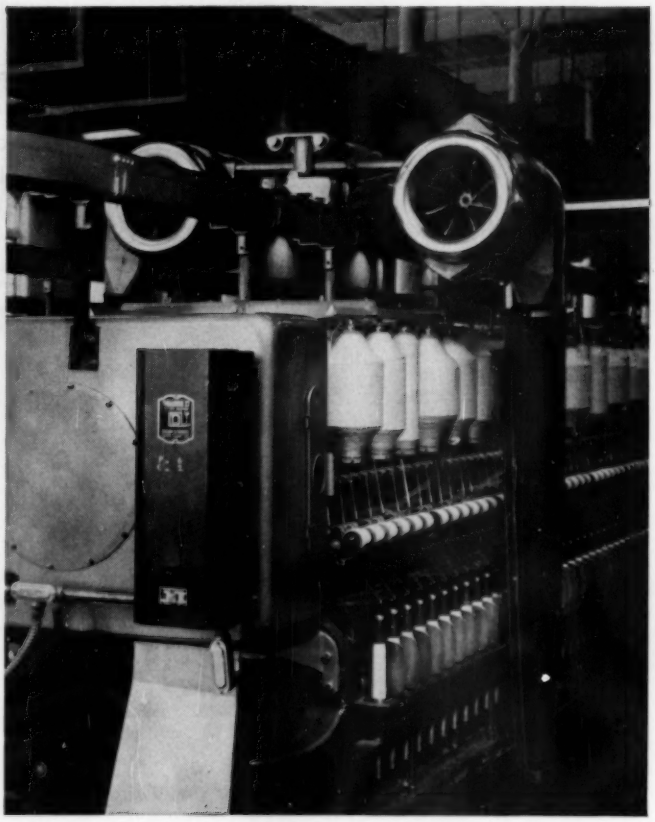

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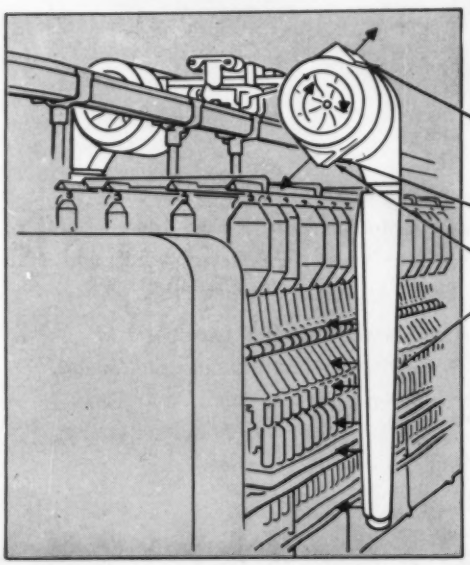

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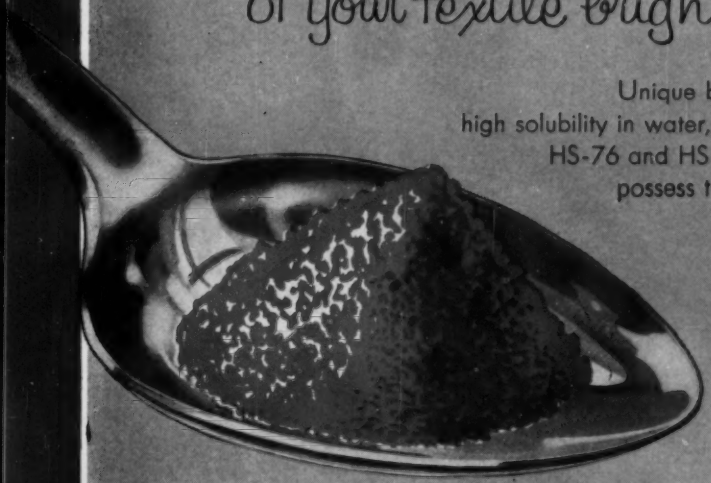

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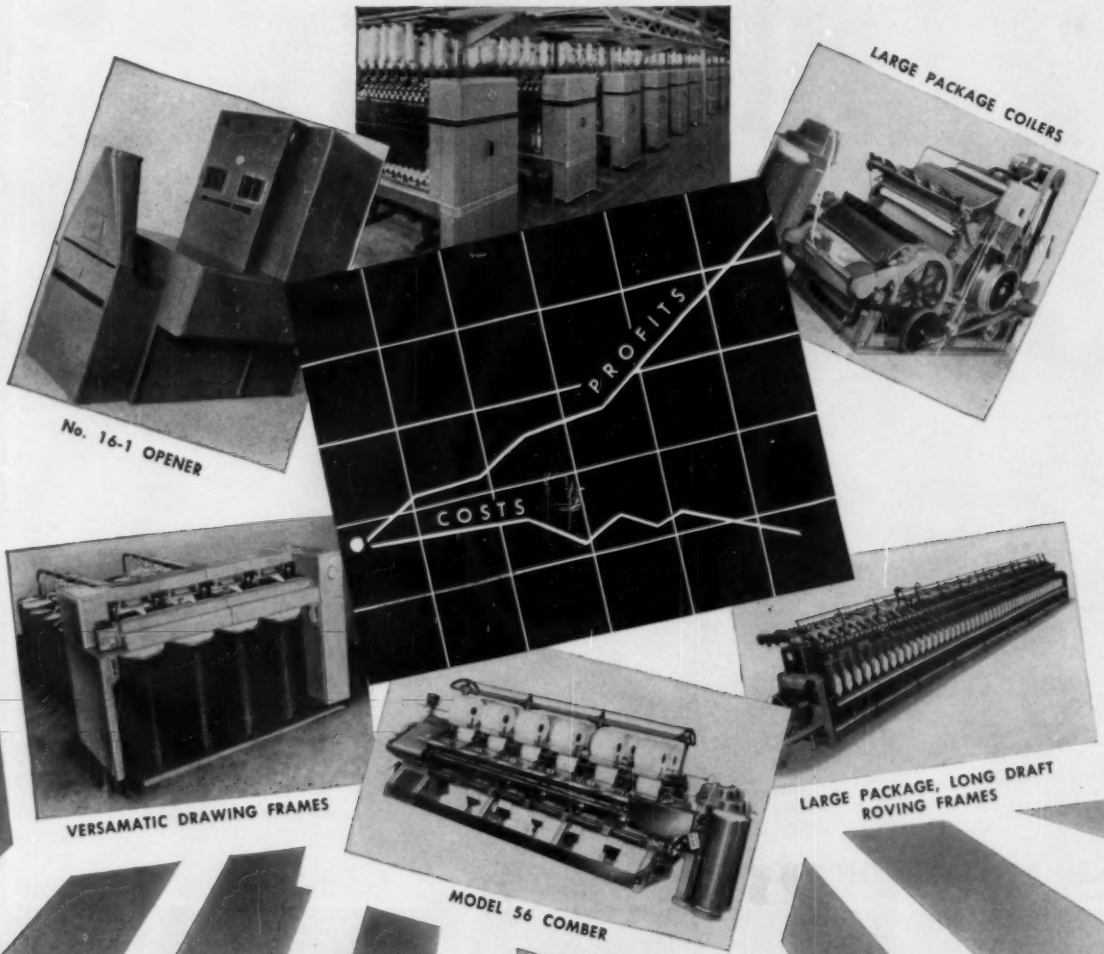

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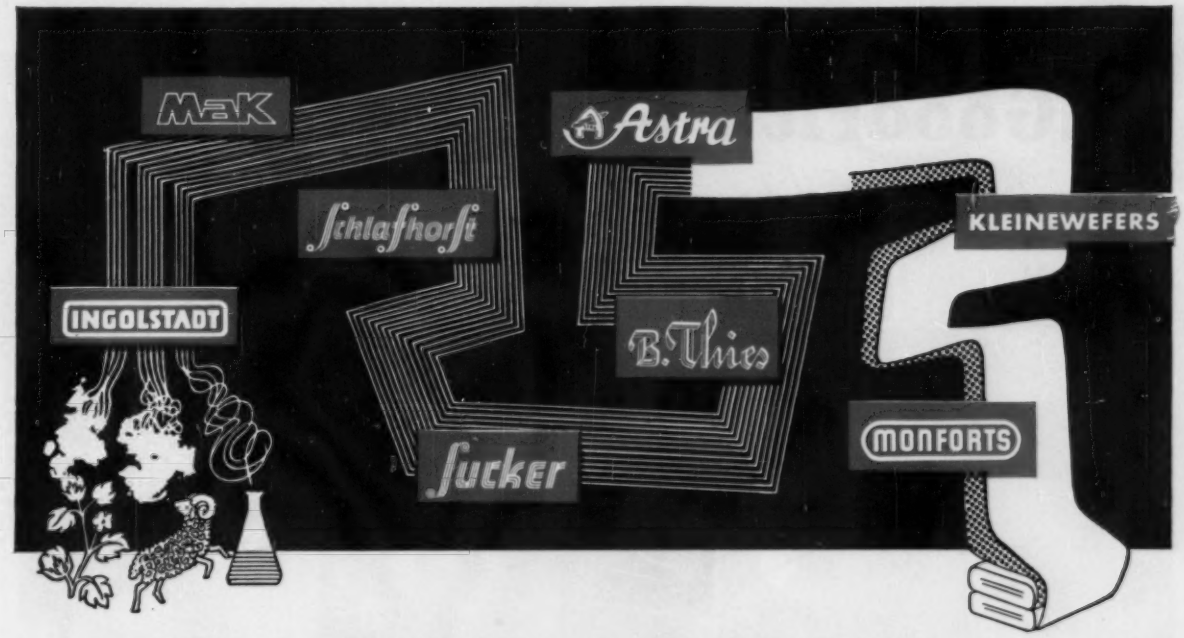


From the fibre to the finished fabric

UNIONMATEX *advises you, plans expertly and delivers*

textile machinery for your new projects, mill additions and mill modernisation

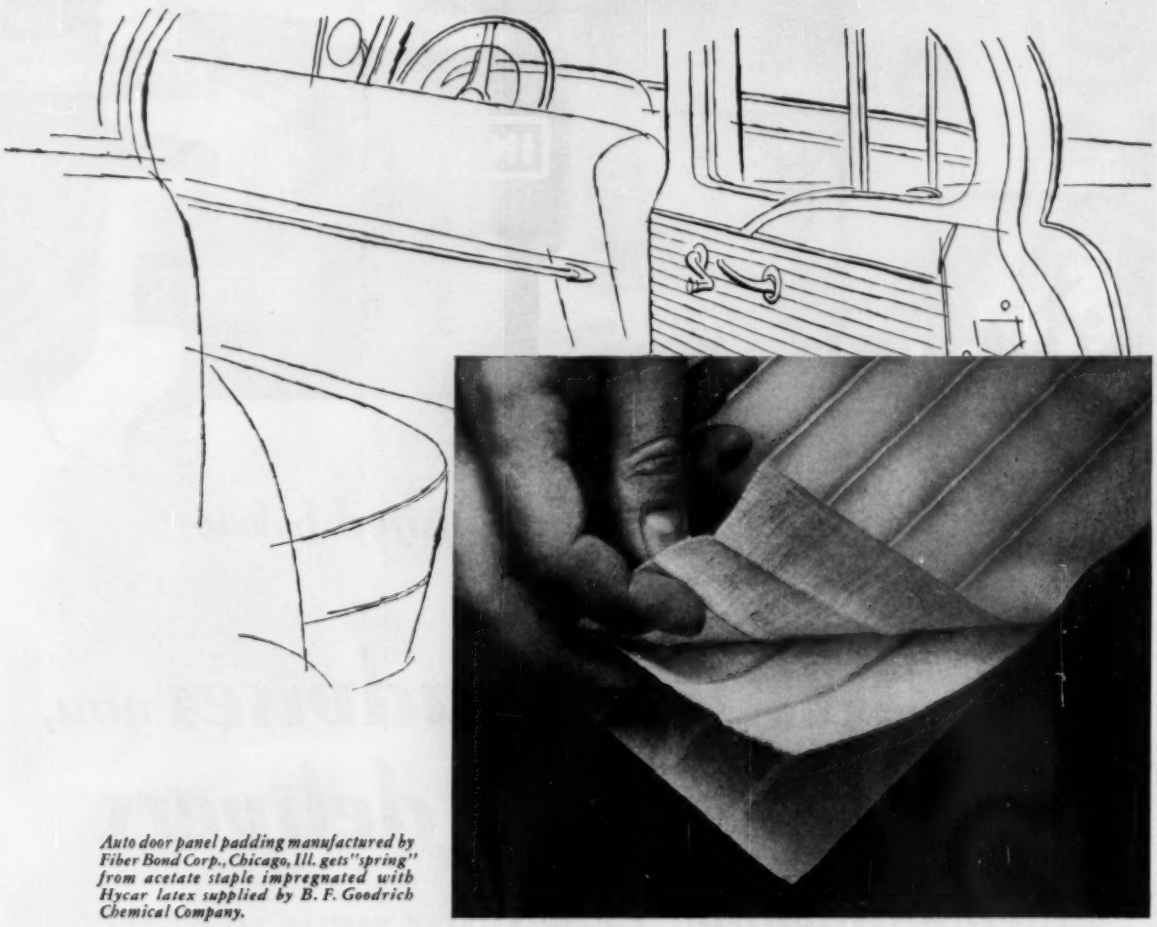
INGOLSTADT Spinning Machinery for cotton, artificial staple-fibre and worsted
MAK Card Sets · Self-acting Mules · Ring spinning Frames
SCHLAFHORST Machines for winding-warping and sectional warping
SUCKER Sizing Machines · Size Mixing and Cooking Installations
THIES Dyeing and Bleaching Plants for yarns and card-slivers of all kind
ASTRA Weaving Machines for cotton-, wool- and special fabrics e. g. feltcloths · Jacquard-weaving Machines
KLEINEWEFERS Calenders · Mangles · Printing-, Mercerizing machines · Continuous Bleaching and Dyeing Plants
MONFORTS Finishing Machinery · Measuring, Inspecting, Plaiting, Rolling and Doubling Machines for all kinds of cloth

NET

UNIONMATEX TEXTILMASCHINEN-UNION GMBH, FRANKFURT/MAIN, NEUE MAINZER STR. 22
CABLE: UNIONMATEX · TELEX: 0412497 · TELEPHONE: 98168/93522

Another new development using

B.F.Goodrich Chemical *raw materials*



Auto door panel padding manufactured by Fiber Bond Corp., Chicago, Ill. gets "spring" from acetate staple impregnated with Hycar latex supplied by B. F. Goodrich Chemical Company.

Hycar latex puts bounce into acetate staple for auto interiors

THE padding in that new car door panel? Chances are good that it's acetate staple bonded permanently together and made springy by Hycar latex.

In this impregnated textile application, Hycar 1577 and Hycar 1561 provide strength, soft give and secure heat-sealed laminations of vinyl upholstery, staple and panel board. More good reasons for Hycar's use here—it withstands moisture; resists mold, mildew, fungi, insects; and does not discolor the vinyl.

Versatile Hycar latices are outstanding bonding media for other textile fibers, too: nylon, rayon, cotton, wool and many fiber combinations. They produce non-woven fabrics having good hand, rumple and mat-resistance, good crease recovery, washability and exceptional resistance to solvents and dry cleaning fluids.

New uses for non-woven fibers bonded by Hycar are born almost every day. Examples include garment inner linings, simulated chamois and washcloths. For information on Hycar latices, write Dept. HE-6, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

Hycar
Reg. U.S. Pat. Off.
American Latex

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors

DEUTSCHER SPINNEREIMASCHINENBAU INGOLSTADT *Ingolstadt/Donau* GERMANY

SPINNING MACHINERY FROM INGOLSTADT THROUGHOUT THE WORLD!

SPINNING MACHINERY FROM INGOLSTADT THROUGHOUT THE WORLD!

SPINNING MACHINERY

FOR COTTON · ARTIFICIAL STAPLE FIBRE AND WORSTED

Planning and supply of complete spinning plants based on latest experience in spinning technology and mechanical engineering

Spares for spinning machinery · Conversions of draft systems

DEUTSCHER SPINNEREIMASCHINENBAU INGOLSTADT *Ingolstadt/Donau* GERMANY

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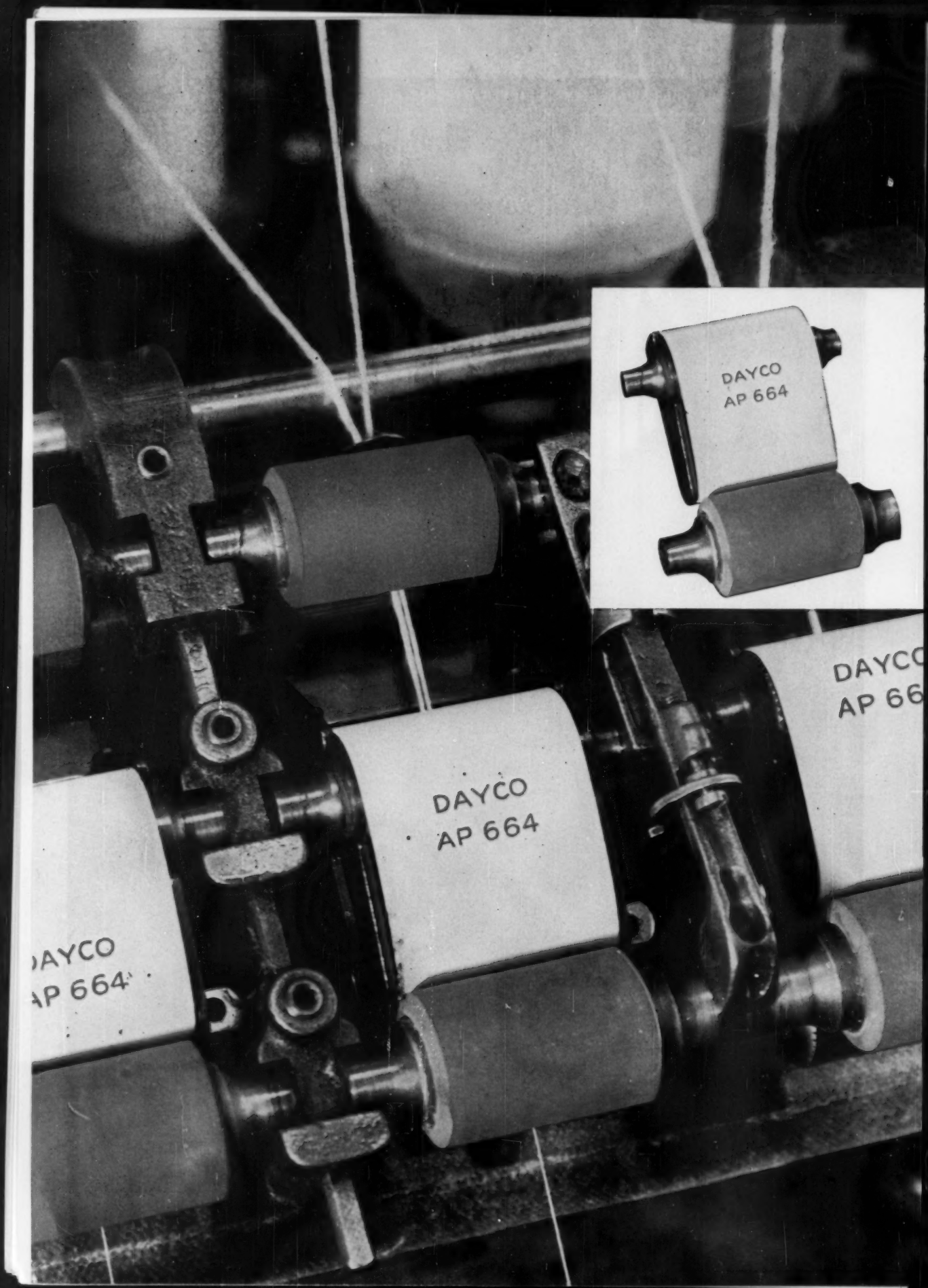
DAYCO
AP 664
DAYCO
AP 664
DAYCO
AP 664
DAYCO
AP 66

Cut out lost time !

by using Dayco Cots and Aprons

PROFITS ARE MADE . . . or lost . . . right there in your drafting area. Put up with slow Monday morning starts, excessive ends down and overloaded clearer boards, and there go the profits. On the other hand, if you equip your drafting area with Dayco Aprons and Cots, you'll count out more production . . . with fewer man-hours . . . because you've eliminated the principal causes of slow-ups and down time.

FASTER START-UPS are yours with Dayco Aprons and Cots because they won't adhere to fibers . . . no matter how long you've been shut down. By the same token, they're unaffected by lubricants and oils in the natural fiber and, above all, stay dry even when the temperature and humidity get out of hand!

COUNT THE YARDS at the end of the shift and you'll be surprised at how many more you've run. Because Dayco Aprons and Cots have just the right coefficient of friction, they have a smoother, more economical drawing action that leaves all the long fibers in the yarn instead of depositing them on the clearer board. The result is stronger yarn, fewer ends down, and more yards per shift.

LONGER LIFE means that over the months, you'll find the Dayco Combination gives hundreds of hours more service. Dayco Aprons won't curl, become sticky or groove . . . won't stretch or take a permanent set. Neither will Dayco Cots pit, groove, or become glazed from hard wear. Naturally, with the longer life of the Dayco Combination, you'll save many hours of replacement time.

Take a second look at your profits and you'll want your Dayco representative to arrange a test with the Dayco Combination the next time he calls. Or write The Dayton Rubber Co., Textile Division, 401 S. C. National Bank Building, Greenville, South Carolina.

Dayton Rubber

Dayco and Thorobred Textile Products for Better Spinning and Weaving

SONOCO tubes are "Job-Rated" for every textile need!

Sonoco "job-rated" paper tubes for the textile industry are the result of nearly 60 years' research and experience. Sonoco manufactures or can design a tube best suited to your particular need. This eliminates expensive guesswork and greatly reduces downtime.

Sonoco tubes are made from paper manufactured by Sonoco. Strict quality controls are maintained throughout the entire manufacturing and converting processes. This is one of several reasons why Sonoco does a better job of supplying tubes to meet your requirements. Special surface finishes and tube-end treatments are available to meet specific problems in winding, twisting, creeling and related operations.

Use Sonoco "job-rated" tubes for efficiency and better production.

sonoco
SERVES THE WORLD
PAPER CARRIERS
REG. U.S. PAT. OFF.

SONOCO PRODUCTS COMPANY

MAIN OFFICE — HARTSVILLE, S. C.

MYSTIC, CONN. • AKRON, IND. • LOWELL, MASS. • PHILLIPSBURG, N. J.
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1022

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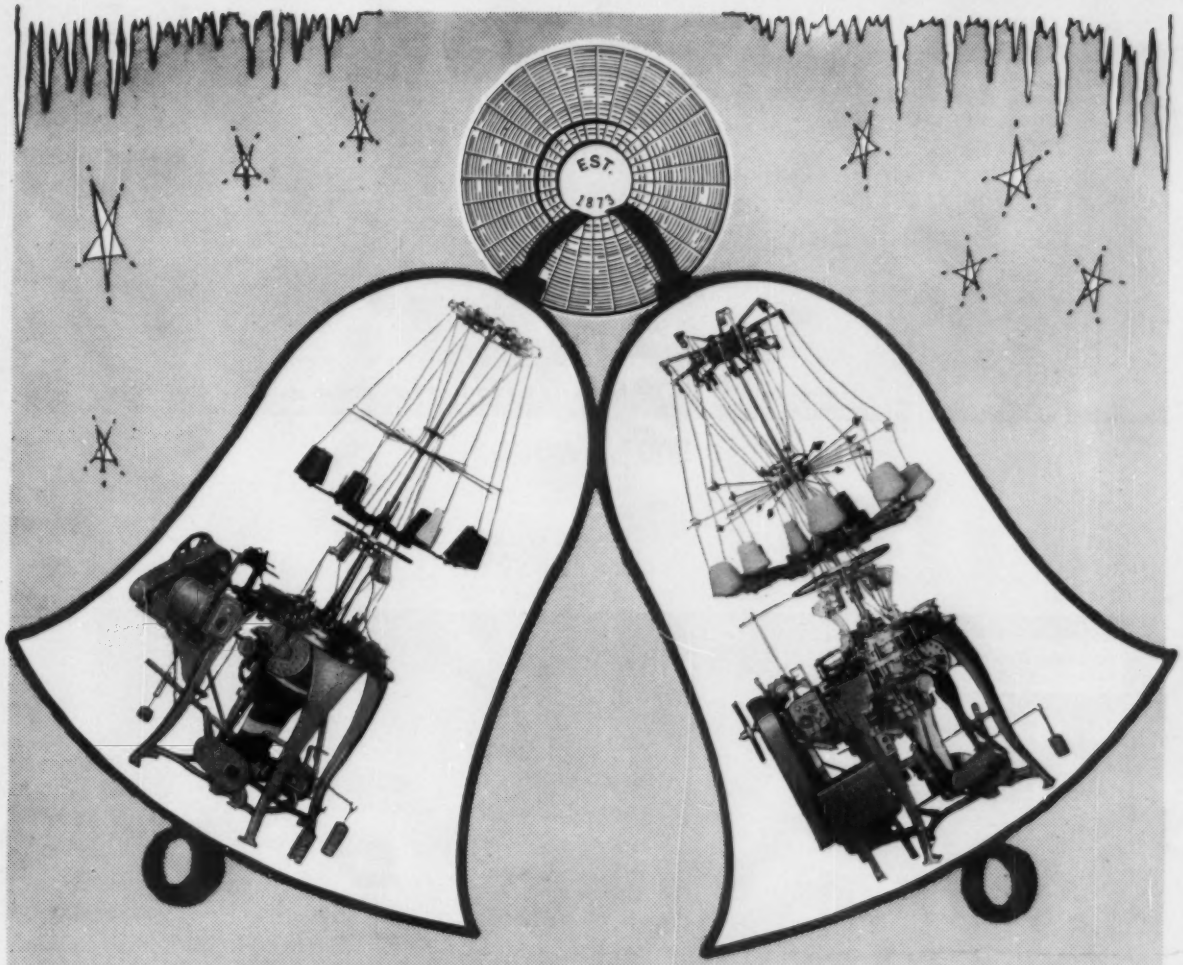

LEIGHTON MACHINE CO.

WISHES YOU

Seasons Greetings

AND A

PROSPEROUS NEW KNITTING YEAR

··· MANCHESTER, NEW HAMPSHIRE ···

MFGRS. OF CIRCULAR LATCH NEEDLE KNITTING MACHINES

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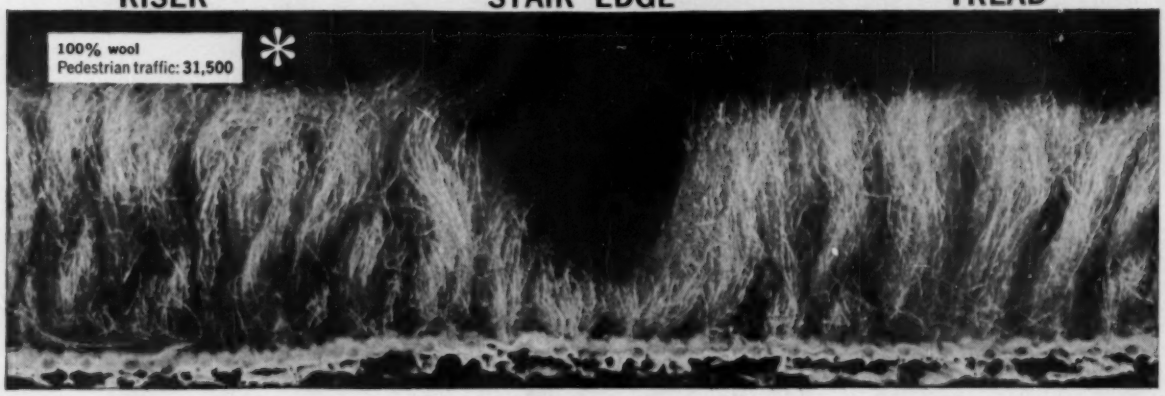
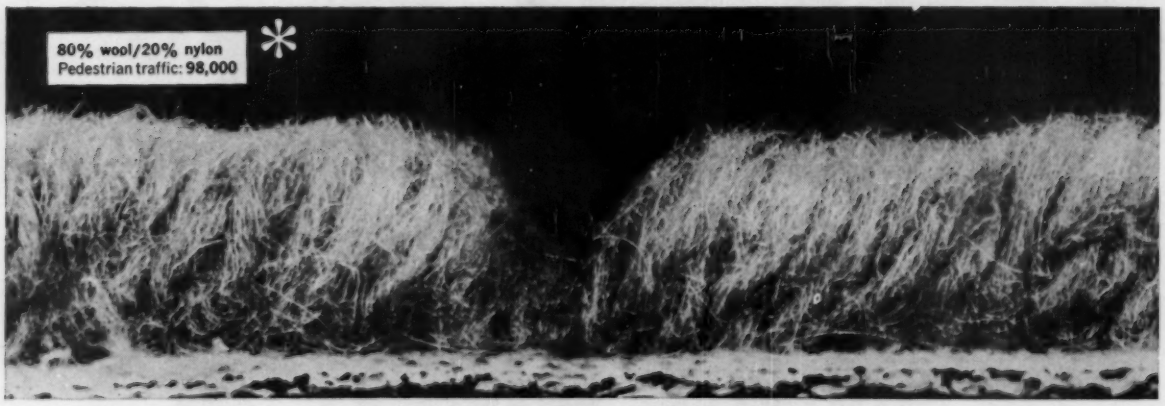
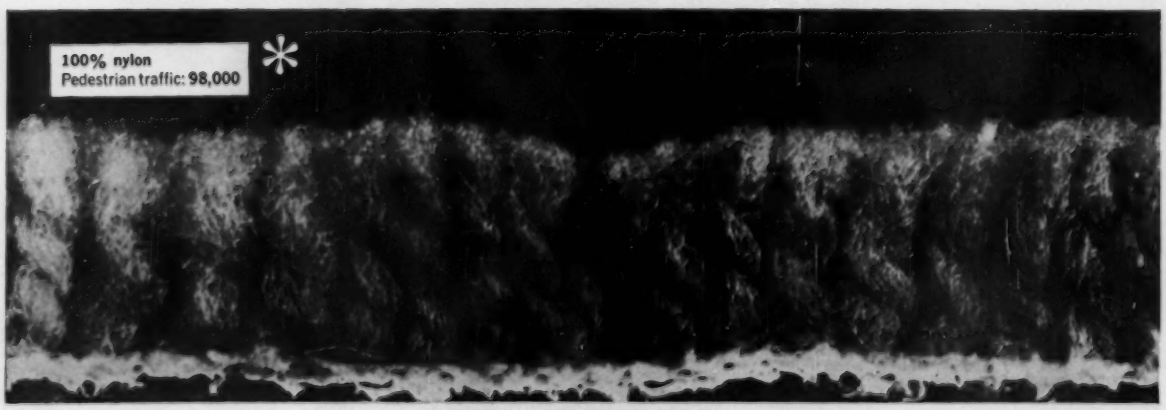
RISER STAIR EDGE TREAD



100% WOOL



80% WOOL/20% I.R.C. NYLON



100% I.R.C. NYLON

* Note that the 100% wool strip wore out almost completely with but one third the pedestrian traffic of the other two strips.

in carpeting, nothing adds wear like NYLON!

How does it wear? That's one of the most important questions consumers ask about carpeting. Permanent textures, higher recovery from crush, excellent resistance to matting, and greater resiliency are other important performance characteristics consumers want to know about. Nylon has them *all*, and they've been proved not only in the laboratory, but in *actual wear tests, too!* Flame-resistance? Nylon does not support flame. *No other fiber adds durability to floor covering like nylon!* The toughest possible traffic test proves... The Higher The Nylon Content—THE LONGER THE WEAR!

THE NEW Nylon Staple I·R·C

INDUSTRIAL RAYON CORPORATION, Sales Office: 500 Fifth Avenue, New York 36, New York · 627 Guilford Building, Greensboro, North Carolina

wear... Nylon outwears wool and every other carpeting fiber known. In this test, identical*, unpadded strips of carpeting were laid on bare, rough steps in an industrial plant. Strips were rotated regularly. 100% wool broke down at 31,500 pedestrian traffic mark. 80% wool/20% nylon was still useable after 98,000 pedestrians. At same 98,000 mark, 100% nylon shows virtually no wear.

***strips of carpeting were identical except for fiber content.**

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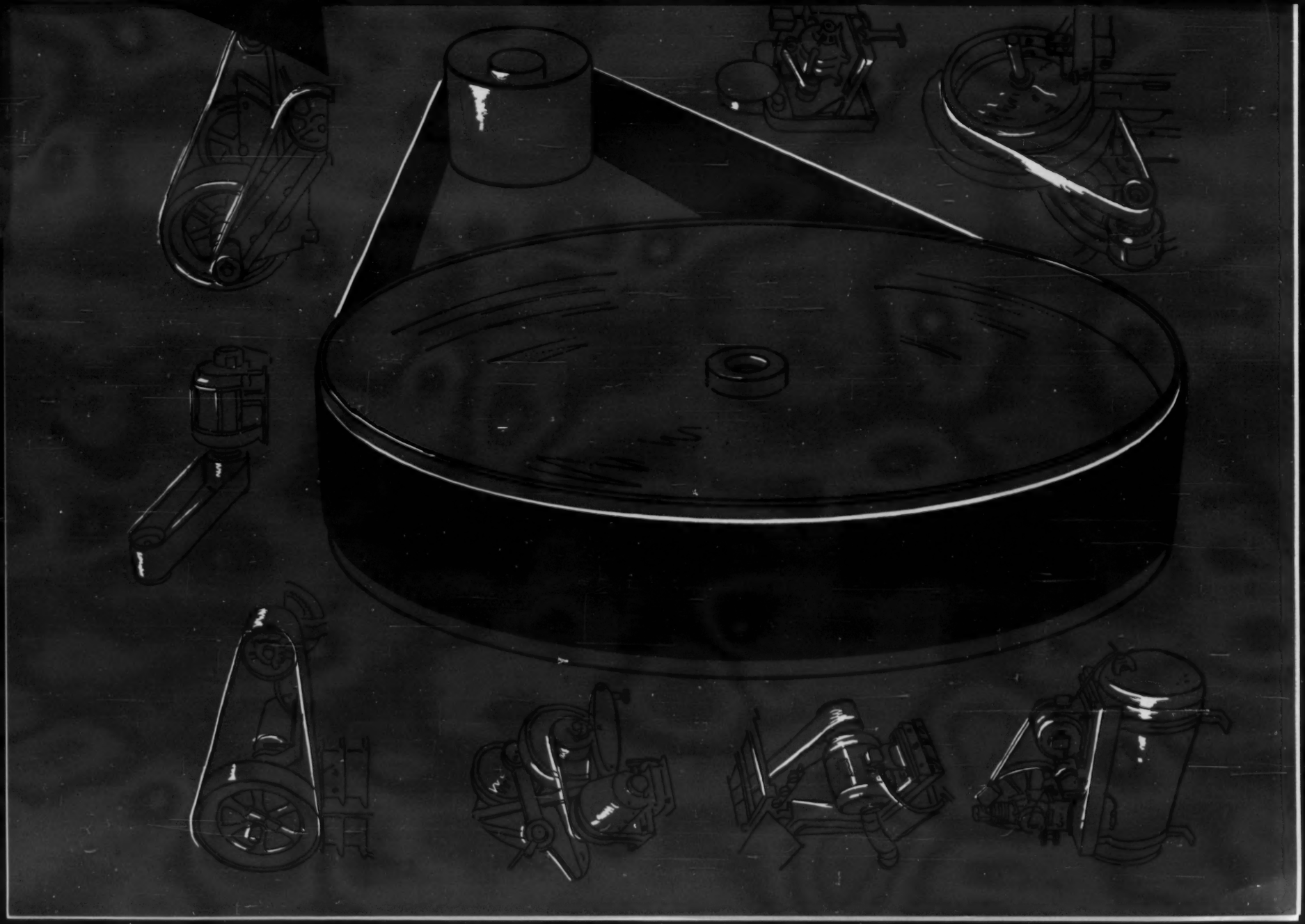


RHOADS

Since 1702 . . . Pioneers in Mechanical Power Transmission

WHERE THE JOB SELECTS THE BELT

In the Rhoads "family" there are now *three* distinct types of beltings — leather beltings; all synthetic beltings of fabric and plastic; and leather beltings with a nylon core (see details below). Each is built to Rhoads standards of quality and each has a record of proved performance in particular fields of power transmission.

Back of these three distinct types of beltings is Rhoads Engineering — an organization of specialists in mechanical power transmission, whose business it is to learn precisely *all* the conditions under which the belt must work and *all* the details of the job to be done . . .

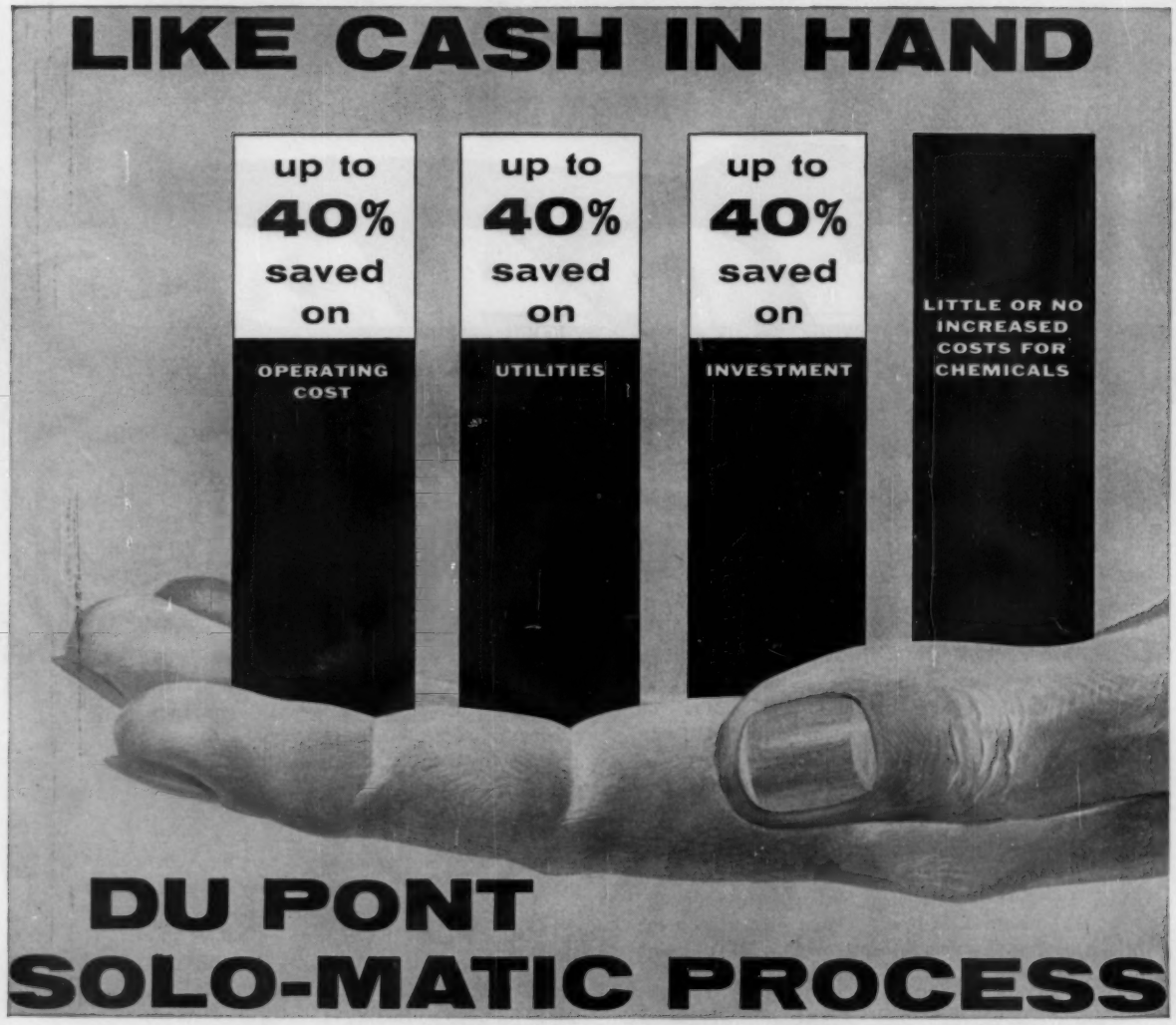
Based on this information, and against a background of broad experience, Rhoads Engineering works with the customer or the belting engineer, (1) on the selection of the proper type of belting, and (2) on the development of a belt that is engineered to meet each condition and to do the job at hand most efficiently and economically.

The job selects the belt.

Let us tell you more about the Rhoads "family" of beltings. And more about Rhoads Engineering, and what it can mean to you in better performance in power transmission on every type of job . . . from the smallest spindle drive in a textile mill to the smooth, unbroken flow of power for a lineshaft-driven papermaking machine . . . and under every condition, from water and moisture through dust and oil to steam, high temperatures, or excessive dryness. Address Engineering Department, J. E. Rhoads & Sons, Wilmington 99, Delaware.

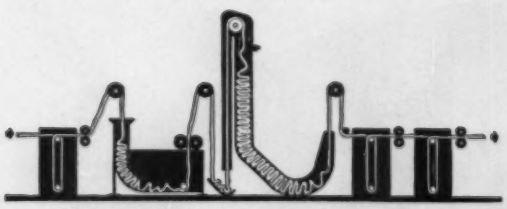
Tanastic
with the strength of nylon . . . the grip of leather
TANASTIC — newest member of the Rhoads family of beltings is the leather/plastic which provides an elastic, stretch-free belt that holds its driven speed for the life of the drive, without tension adjustment.
TANASTIC's greater tensile strength, from its core of nylon, permits narrower widths . . . reduces costs. High friction coefficient allows shortest center distances. Well-adapted to multiple pulley drives, crossed, quarter-turn and cone drives. With TANASTIC, you can use pulley ratios as high as 20:1 . . . at contact arcs as low as 90°
with speeds to 10,000 fpm . . . at capacities to 500 hp and over!

LIKE CASH IN HAND


up to 40% saved on OPERATING COST
up to 40% saved on UTILITIES
up to 40% saved on INVESTMENT
LITTLE OR NO INCREASED COSTS FOR CHEMICALS

DU PONT SOLO-MATIC PROCESS

gives you the most for your bleaching dollar



DU PONT'S "SOLO-MATIC" PROCESS is the most advanced single-stage bleaching method available. It can be used with any standard pretreatment and adapted to new or existing equipment.

• Above you see how costs for Du Pont's Solo-Matic hydrogen peroxide bleaching process compare with those for two-stage bleaching systems. You'll note substantial savings are possible with the Solo-Matic—yet it bleaches as much as a two-stage process *in the same time!* (Costs shown in the above chart are average. In individual plants even greater savings can be realized.)

Here are three more cost-saving advantages you can count on: 1. Fewer rejects. 2. Improved hand and absorbency. 3. Most efficient use of steam and chemicals. We'll be glad to give you all the details on the Solo-Matic process. Just write to Du Pont at the address below.

DU PONT ALBONE®
hydrogen peroxide

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . *THROUGH CHEMISTRY*

ELECTROCHEMICALS DEPARTMENT
Peroxygen Products Division

E. I. DU PONT DE NEMOURS & CO. (INC.)
Wilmington 98, Delaware

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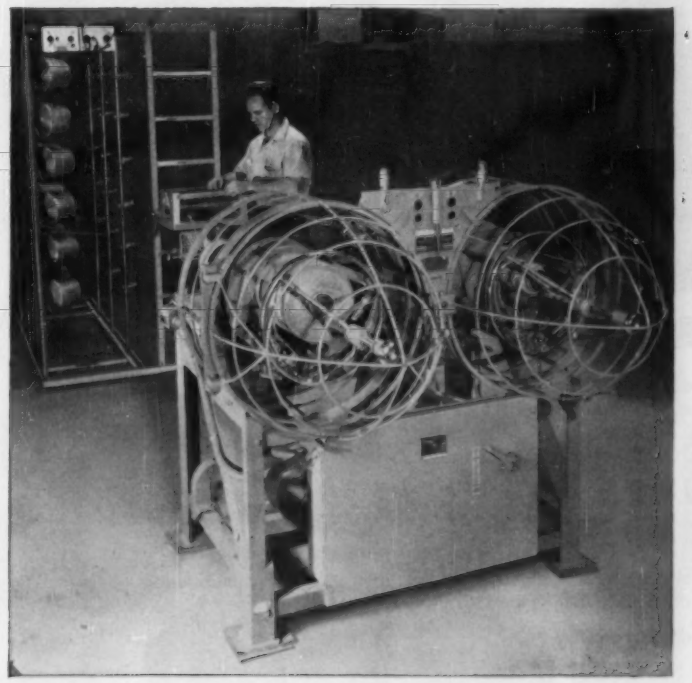
Warner & Swasey Whirlwind®

Twister Winder cuts costs,

maintains high cord quality for

Ideal FASTENER CORPORATION



Ideal's Twister Winder produces a low-cost, knot-free, jumbo package six times larger than their previous packages. By producing their own cord they report savings of 50%.

Ideal Zippers, produced by the Ideal Fastener Corporation of Long Beach, New York, have enjoyed a 20-year reputation for quality, dependability and long life. Helping maintain this reputation has been Ideal's basic quality control during tape and cord manufacture. For example, if turns per inch in zipper cord change but a fraction, the finished zipper reveals a permanent defect—destroying its commercial value.

Ideal found that their specific requirements of flexibility and maximum production in limited floor space was best met by the Warner & Swasey Whirlwind Twister Winder that twists and winds simultaneously.

"S" and "Z" twists are now run simultaneously and changes from one cord to another require very little downtime. Cord is more uniform, spiral effects excellent and runouts have been decreased to the point where knots no longer pose a serious problem. Ideal has found that the Twister Winder cord gives longer needle life, better stitching and less re-threading.

This is but another example of how Warner & Swasey's modern scientific design in textile machinery is producing increased profit for users everywhere. Why not discuss your requirements with our Field Engineers, today.

® Reg. U. S. Pat. Off.

SALES OFFICES
Main Office and Factory:
5701 Carnegie Ave., Cleveland 3, Ohio
61 Rivulet St., North Uxbridge, Mass.
121 11th St., N. E., Atlanta 3, Georgia
Suburban Square Bldg., Ardmore (Philadelphia), Pennsylvania
624 Pecan Ave., Charlotte 5, N. Carolina

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS...WITH A WARNER & SWASEY

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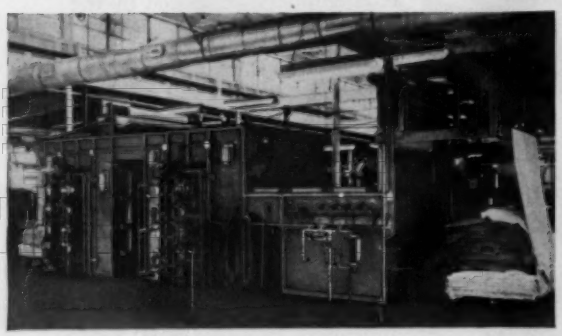
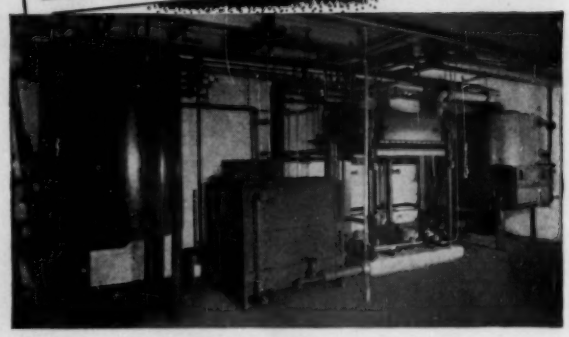
The Fleet Line for Synthetics AND Woolens & Worsteds

DERBY CONTINUOUS DRY CLEANER



Distilling Equipment (located below machine) effects important savings through solvent and oil recovery.

ECONOMICAL! DIFFERENT!! EXCLUSIVE!!!



CHECK THESE FEATURES

Synthetics and Synthetic Blends

1. Efficiently removes finishing oils, used in production of the fiber and in manufacturing operations, which are difficult to remove in fulling and scouring.
2. Removes excess dyestuffs, reduces crocking.

Woolens and Worsteds

1. Valuable to facilitate carbonizing in grey.
2. Dry Cleaning before carbonizing in grey, previous to fulling, eliminates heavy grease deposits in the carbonizer.
3. Continuous operation through Carbonizing Range.
4. Recleaning of finished goods without costly reprocessing.
5. Reduced cost of fulling mill and scouring operation by grease removal in cleaner.
6. Permits fulling in acid with suitable detergents.

NOTE: One-man operation, with production as high as 30 yards per minute on 14 to 16 oz. woolens. This machine made by Riggs & Lombard *exclusively.*

RIGGS AND LOMBARD INC.

FOOT OF SUFFOLK STREET, LOWELL, MASS.

Agents: Paul A. Merriam Co., P. O. Box 86, Providence, R. I. • Larry T. Nelson, 860 3rd St., Santa Monica, Cal.
Albert R. Breen, 80 E. Jackson Blvd., Chicago 4, Ill. • F. W. Warrington Co., 611 Johnston Bldg., Charlotte, N. C.
A. Harold Zayotti, Jr., P. O. Box 125, Riverton, N. J. • H. E. Mott Co., Limited, Brantford, Ontario, Canada

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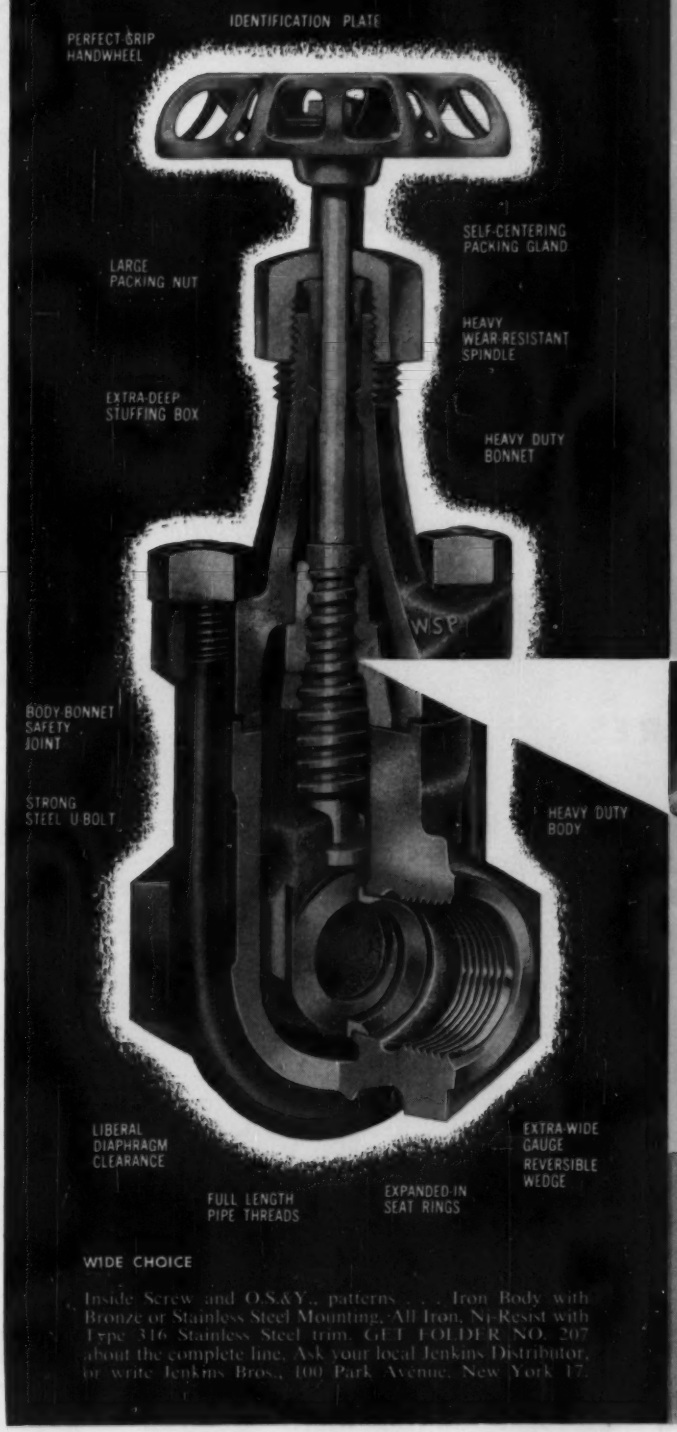
Only the big line of

JENKINS U-BOLT GATES

has all these dollar-saving features



WIDE CHOICE

Inside Screw and O.S.&Y., patterns . . . Iron Body with Bronze or Stainless Steel Mounting, All Iron, Ni-Resist with Type 316 Stainless Steel trim. GET FOLDER NO. 207 about the complete line. Ask your local Jenkins Distributor, or write Jenkins Bros., 100 Park Avenue, New York 17.

Priced no higher

DESIGNED TO COST LESS TO USE

Built right into a Jenkins U-Bolt Gate Valve are dollar-saving features no other can match. Construction superiorities that equip this valve to take punishment longer . . . saving dollars in replacement bills. Features that cut maintenance time and the cost of replacement parts . . . saving more dollars. For a good example, look at the unique Renewable Bonnet Saver Bushing which is a patented feature of Inside Screw valves.

BONNET-SAVER BUSHING

No need to junk a bonnet with worn operating threads. Just slip in a new bushing for good-as-new thread engagement . . . saving bonnet and lengthening spindle life.

JENKINS

LOOK FOR THE JENKINS DIAMOND

VALVES

JENKINS SINCE 1864 Jenkins Bros.

Sold Through Leading Distributors Everywhere

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SANDOZ

MERCEROL QW

for faster wetting and increased shrinkage in mercerizing

Sandoz developed the first product for mercerizing grey goods twenty-five years ago. Now, following a series of major improvements, Sandoz brings you new Mercerol QW . . . offering greater mercerizing advantages than ever in terms of faster wetting and increased shrinkage. Write for your sample today.

SANDOZ, INC., 61-63 Van Dam Street, New York 13, N. Y., ALgonquin 5-1700

SANDOZ

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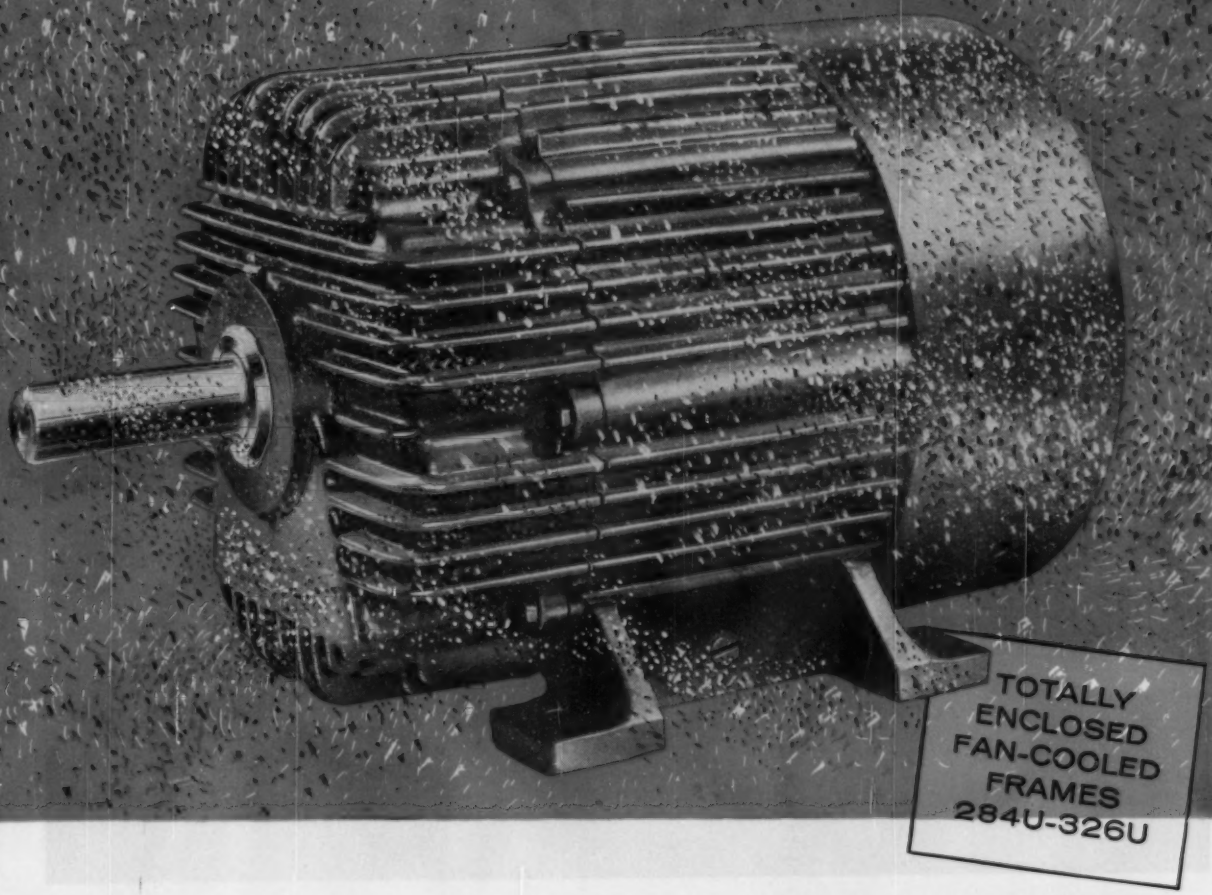
Inside and Outside . . . entirely **new**



NEW Elliott C-W type N Motor PERMANENTLY SEALED Against Dust, Moisture, Corrosive Fumes

The rugged "Sealedpower" cast frame Elliott motor shown above is the modern version of the design pioneered in this country by Crocker-Wheeler. An external fan, made of sparkless material, and surrounded by a cowl, blows air along the frame for highest cooling efficiency. An internal fan provides continuous air circulation within the enclosure. All openings in the frame are tightly sealed, providing complete protection to windings and working parts.

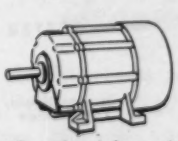
Once applied only in locations where extremely destructive atmospheric conditions prevail, totally-enclosed motors are today rapidly gaining acceptance for all types of applications. Users find that the total over-all cost—first cost plus maintenance—is less than that of open or semi-enclosed motors.

Ask your Elliott representative for details, or write for the new type N motor bulletin. Address Elliott Company, Crocker-Wheeler Division, Jeannette, Pennsylvania.

OTHER C-W TYPE N MOTOR ENCLOSURES

Totally-enclosed non-ventilated

Dripproof Protected



Totally-enclosed, fan-cooled Frames 256 U and smaller

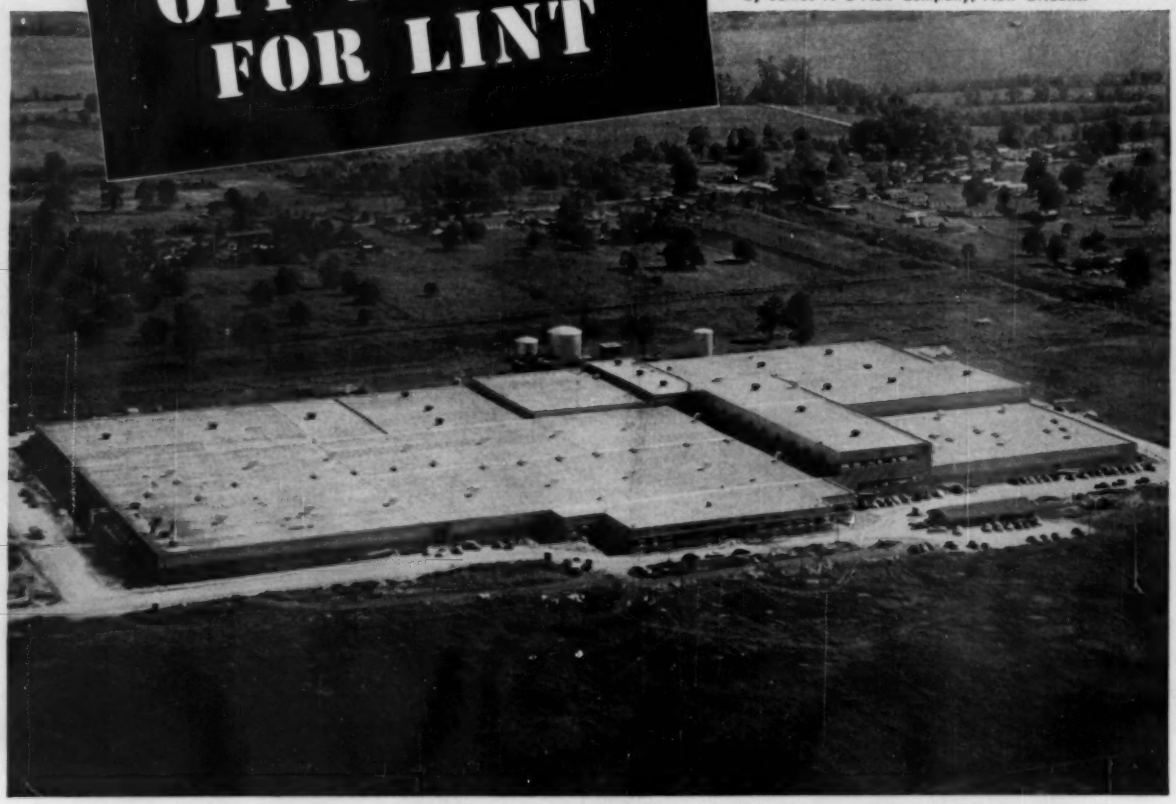
ELLIOTT Company
CROCKER-WHEELER DIVISION

We will be glad to send a copy of this new booklet describing the complete line of Elliott C-W type N motors. Please write on company letterhead.

W6-6

OFF LIMITS FOR LINT

Greenville Mills, Inc., Greenville, Mississippi. Air conditioning system designed by Mallett & Associates, Jackson, Mississippi; installed by James F. O'Neil Company, New Orleans.



AAF Auto-AIRMAT filters guard against lint at Greenville Mills plant (a subsidiary of Mohasco Industries, Inc.)

Lint has no way to turn in this modern plant of Greenville Mills, Inc., at Greenville, Mississippi. Wherever it is produced, it is immediately wrapped up by AAF's automatic lint filter—the Auto-AIRMAT. Auto-AIRMATS are installed on 24 air conditioning systems, cleaning 792,000 cfm of air.

Auto-AIRMAT is the *only* filter designed to remove lint fibres from the air and clean itself at the same time! Airmat filtering material, winding from roll at top of unit, moves automatically down the face of the filter, collecting lint all the way—re-winds into disposable roll at bottom.

If you have a lint *problem*, get the facts on the *lint filter*—AAF's Auto-AIRMAT. Call your local AAF representative or write for Bulletin 234.

AAF Filters and Precipitators

AAF Dust Control Equipment

AAF

American Air Filter

COMPANY, INC.

304 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal 9, P. Q.

— BETTER AIR IS OUR BUSINESS —

Herman Nelson Unit Heaters

Illinois Heating Specialties

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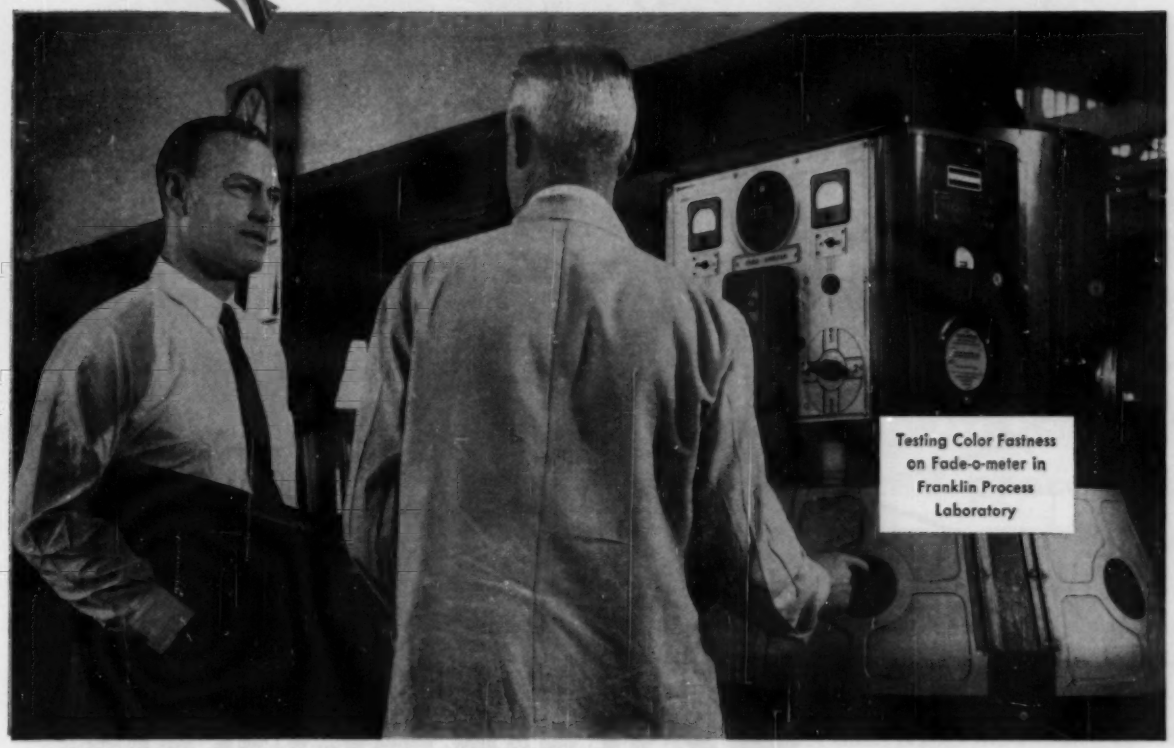
the man of many talents
your ***FRANKLIN PROCESS*** *representative*



Testing Color Fastness on Fade-o-meter in Franklin Process Laboratory

Want the Best Color for the Purpose?

If so, consult with your Franklin Process representative — from any one of our 5 plants or from our New York office. This representative is "a man of many talents" because he is specially trained not only to supply you with quality colored yarns, but also to advise you on:

1. **The best type of dye for the purpose**
2. **The best type of yarn for the purpose**
3. **Fashion trends in colors**
4. **The best method of rewinding from Franklin Packages**
5. **The best yarn putup for the purpose**
6. **The best yarn conditioning for the purpose**
7. **Proper finishing procedures for specific colors**
8. **The proper way to handle dye lots in the mill**

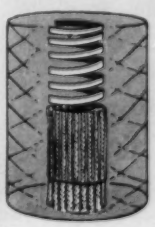
Frequently he can give you such information on the spot. But if not, he can call on the most completely equipped and best staffed laboratory in the business for prompt, dependable answers.

When you need colored yarns (cotton, worsted, or spun synthetics), let "the man of many talents" supply them; let him help you to get maximum value and efficiency with them. It costs you no more.

Franklin Process

Yarn Merchants and Largest Package Dyers in the World — Dyeing Exclusively on the Franklin Spring

Providence • Philadelphia • Greenville • Chattanooga • Fingerville, S. C.
New York Office—280 Madison Avenue



X-ray view of Franklin Package — the "secret" of uniform shades. Don't say "package dyed". Say "Franklin Process Dyed".

For more data, write this page number on Reader-Service card. →

upholstery and drapery fabrics *look better* *sell better* touched with glittering...

FAIRTEX® YARNS

METALLIZED MYLAR* • METALLIC • SUPPORTED METALLIC

Fairtex with Foil or Metallized Mylar* or Fairtex Butyrate Metallic yarns woven into your upholstery and drapery fabrics add the luxury look!

They look better and sell better because the vibrant beauty of Fairtex Metallics stops the eye and starts the sale!

Fairtex Yarns are non-tarnishing and can be safely washed, dry-cleaned or scoured.

As "soft-as-silk" to the touch, they are smooth, pliable and uniform and do not flake or break.

Fairtex Yarns never lose their glittering glamour and outlast even the fabric itself!

Registered Trademark for Dupont's Polyester Film

FAIRTEX CORPORATION • Charlotte, N. C.

CHICAGO:
William Napier, 3555 Peterson Avenue

NEW YORK:
Robert Napier, 51 E. 42nd Street

CHARLOTTE:
Lanier Branson, Jr. and J. E. MacDougall, Jr., 1808 Liberty Life Bldg.

PHILADELPHIA:
William A. Popp & Associates, 3701 N. Broad Street

2953

Put Magic in YOUR carpets with carpet yarns prepared and processed on WHITIN MACHINERY

3-Cyl., Full Roller Card Set

Flex-Spin Wool Spinning

The "Magic" is created by processing the yarns on machinery which brings out the best carpet-making qualities inherent in the fibers, either natural or synthetic.

Top ranking carpet mills across the country depend on Whitin equipment to do just that, every step of the way — from carding through spinning to twisting and winding.

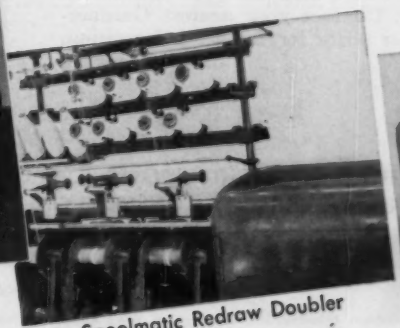
Descriptive literature available on all of the machinery shown. We would be happy to mail it to you.

Whitin MACHINE WORKS

WHITINSVILLE, MASS.

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA.
SPARTANBURG, S. C. • DEXTER, ME.

Model K Twister



Spoolmatic Redraw Doubler

Cable-King Uptwister

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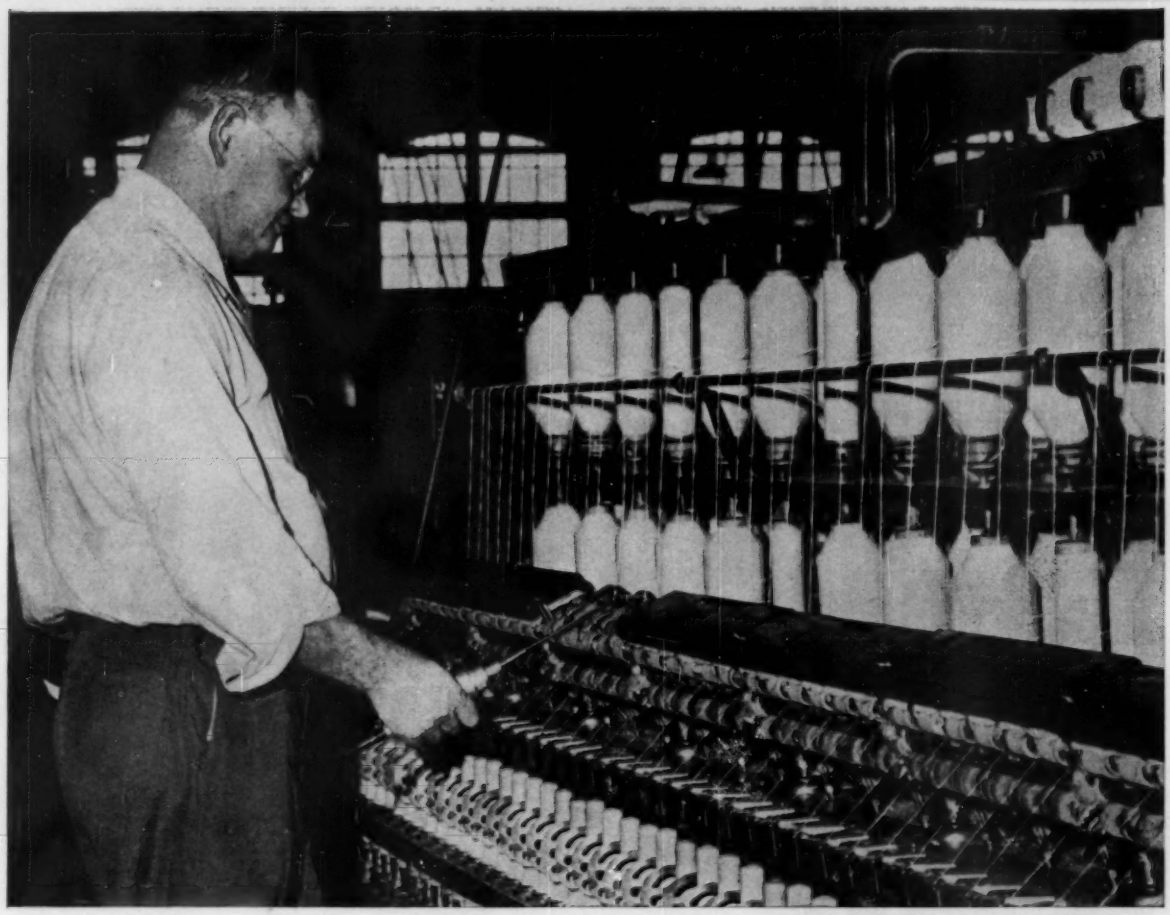

Stop lint damage this easy low-cost way

Save both time and material. Use light, inexpensive Keller Tool Roll Pickers. These handy tools reach right into tough, tight corners, cracks and crevices—collect damaging lint more efficiently than by hand-picking methods or with hand-powered rotating pickers.

Simply insert the long, tapered rod between rolls of the spinning frames while machines are running. This rod, revolving at high speed, gathers the lint. When the rod is full, lint is slipped easily off the end.

Powered by rotary-type air motor, the lightest motor unit available, Keller Tool Roll Pickers are furnished with built-in speed regulators. They are available with either pistol grip or straight handle. Choice of picker rods from 6" to 14". Speeds of 10, 12 or 14 thousand rpm. Largest model weighs one pound; smallest model, 11 ounces.

Find out *today* why more and more textile mills use these economical roll pickers to simplify lint removal. Contact your nearest Gardner-Denver office for a demonstration, or write for further information.

Straight-handle model fits snugly in palm of hand for straightaway picking. Pistol-grip model convenient for up and down picking on newer type spinning frames.

ENGINEERING FORESIGHT—PROVED ON THE JOB
IN GENERAL INDUSTRY, CONSTRUCTION, PETROLEUM AND MINING

GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois

Branch Offices: Atlanta, Ga.; Birmingham, Ala.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Pa.; Pittsburgh, Pa.; New Orleans, La.; Louisville, Ky.

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LUBRICATION NEWS

12 big reasons why the textile industry is using Norgren MICRO-FOG® LUBRICATION

1. Better Lubrication — Less Machine Down Time

MICRO-FOG automatically coats all bearings, gears, chains and other machine components with a continuous, protective film of clean oil. Reduces wear on machine components and cuts maintenance and replacement costs.

2. Oil Always Fresh, Always Clean

No recirculation of deteriorated or contaminated lubricant to cause wear or corrosion. Clean oil is applied continuously in carefully metered amounts.

3. For All Sizes and Types of Bearings

MICRO-FOG has found enthusiastic acceptance for all types of machinery, from *high speed* grinders to huge roll mill bearings on 34" diameter shafts, turning at *low speeds.*

Automatic Air-Borne Lubrication

for
- BEARINGS
- GEARS
- CHAINS
- SLIDES
- WAYS
- OTHER MACHINE COMPONENTS

4. Centralized, Automatic Lubrication

A single MICRO-FOG Lubricator will automatically deliver enough air-borne lubricant, proportionately distributed, to completely lubricate a large machine. Only one lubricator to maintain and refill.

5. Big Savings in Lubricant

Carefully metered quantities of oil are applied to each lubrication point, providing more thorough lubrication with a few ounces of oil per day than other methods using several gallons.

6. Bearings Run Cooler

Air passing through the bearing carries away heat. There is no pool of lubricant in the bearing to generate heat as a result of fluid friction. Lubrication is continuous—no periods of insufficient lubrication.

7. Contaminants Excluded From Bearings

A slight pressure is maintained within the bearing with air continuously escaping and preventing entrance of contaminants from surrounding atmosphere.

8. Fewer Bearing Seals Required

Because MICRO-FOG must be vented to the atmosphere, it is not necessary to maintain tight seals. Fewer oil seals are required, reducing maintenance and machine down-time.

9. Oil Filters, Sumps and Pumps Eliminated

The quantity of lubricant used is so small that there is nothing to reclaim or recirculate. Expensive high pressure piping is also eliminated.

10. Automatic Alarm Controls

MICRO-FOG Lubricators are available with switches to actuate an alarm system or controls as a warning of conditions affecting proper lubrication.

11. Visible Oil Feed

The oil feed is readily visible on all MICRO-FOG Lubricators, providing positive proof that the lubricator is operating properly.

12. A MICRO-FOG Lubricator for Every Size Machine

19 models to choose from—ratings up to 1,000 bearing inches and oil reservoir capacities up to four and one-half gallons.

For complete information, call your nearby Norgren Representative, or WRITE FOR NO. 800 CATALOG.

C. A. NORGREN CO.

3404 SO. ELATI ST., ENGLEWOOD, COLO.

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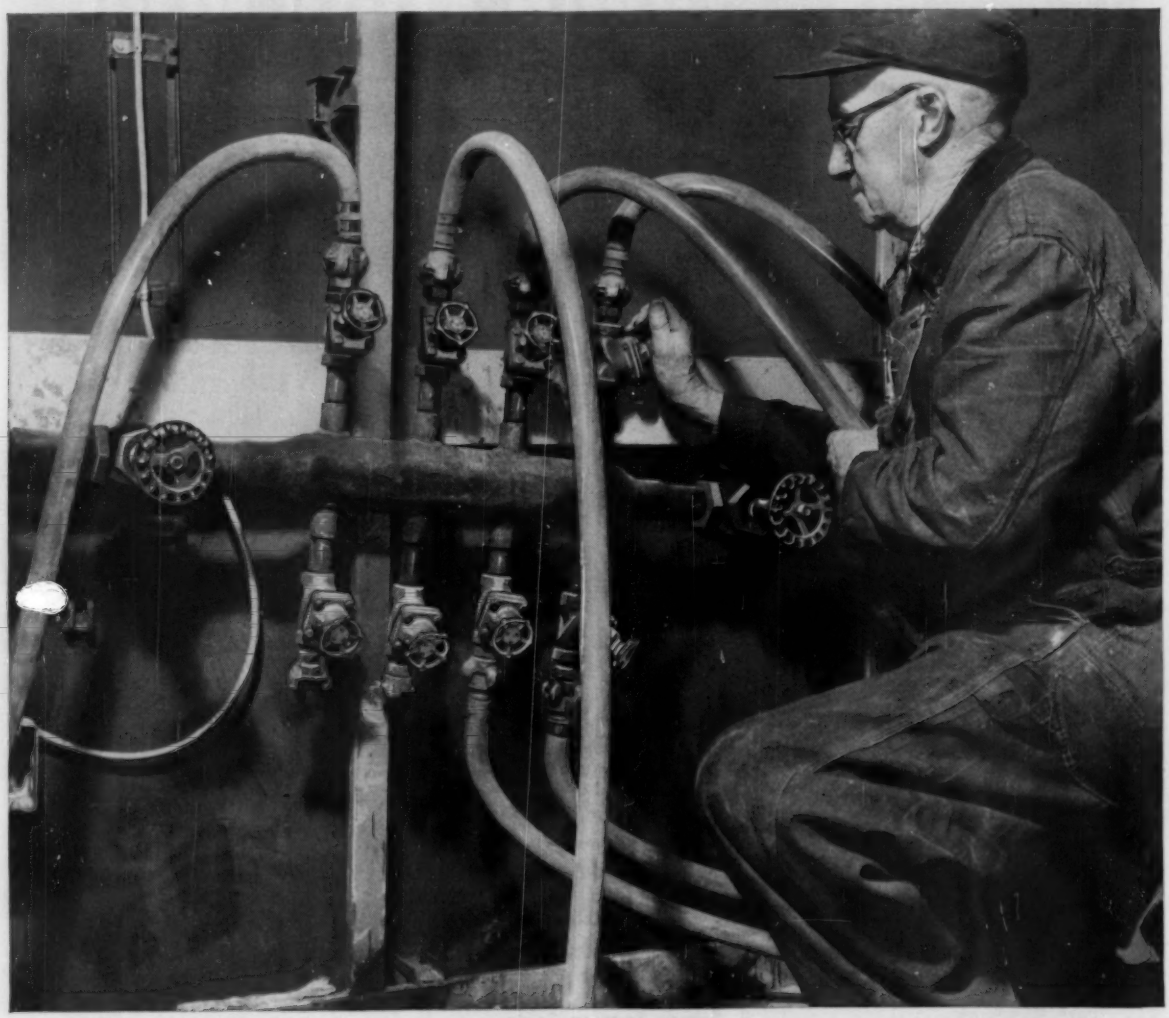
Crane helps another valve user stop high replacement costs

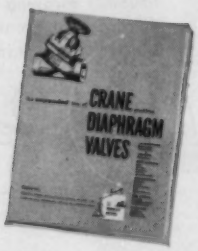


How they solved valve failure on air service

This case history from Willamette Iron & Steel Co., Portland, Ore., shows how you can cut compressed air handling costs in your own plant.

These Crane packless diaphragm valves are handling 100 psi. air on manifolds to distribution lines used aboard ship during construction. Before installing the Crane ¾-inch No. 1610 valves, the yard was troubled by constantly rising maintenance costs. With the other make valves, diaphragms were rupturing after a short time, requiring continual replacement. Loss of air and air power for equipment was costly.

Crane packless diaphragm valves were installed because their neoprene diaphragm functions only as a bonnet seal, and is not subjected to crushing and wear when used as a seating member. The maintenance problem was effectively solved, as it is for so many users throughout industry, by installing the right Crane valve. Contact your Crane Representative today—ask him for complete information on any application.



ASK FOR Crane Folder AD-1942 on packless diaphragm valves. Contact your Crane Representative for a copy, or write to Crane Co., at address below.

CRANE VALVES & FITTINGS

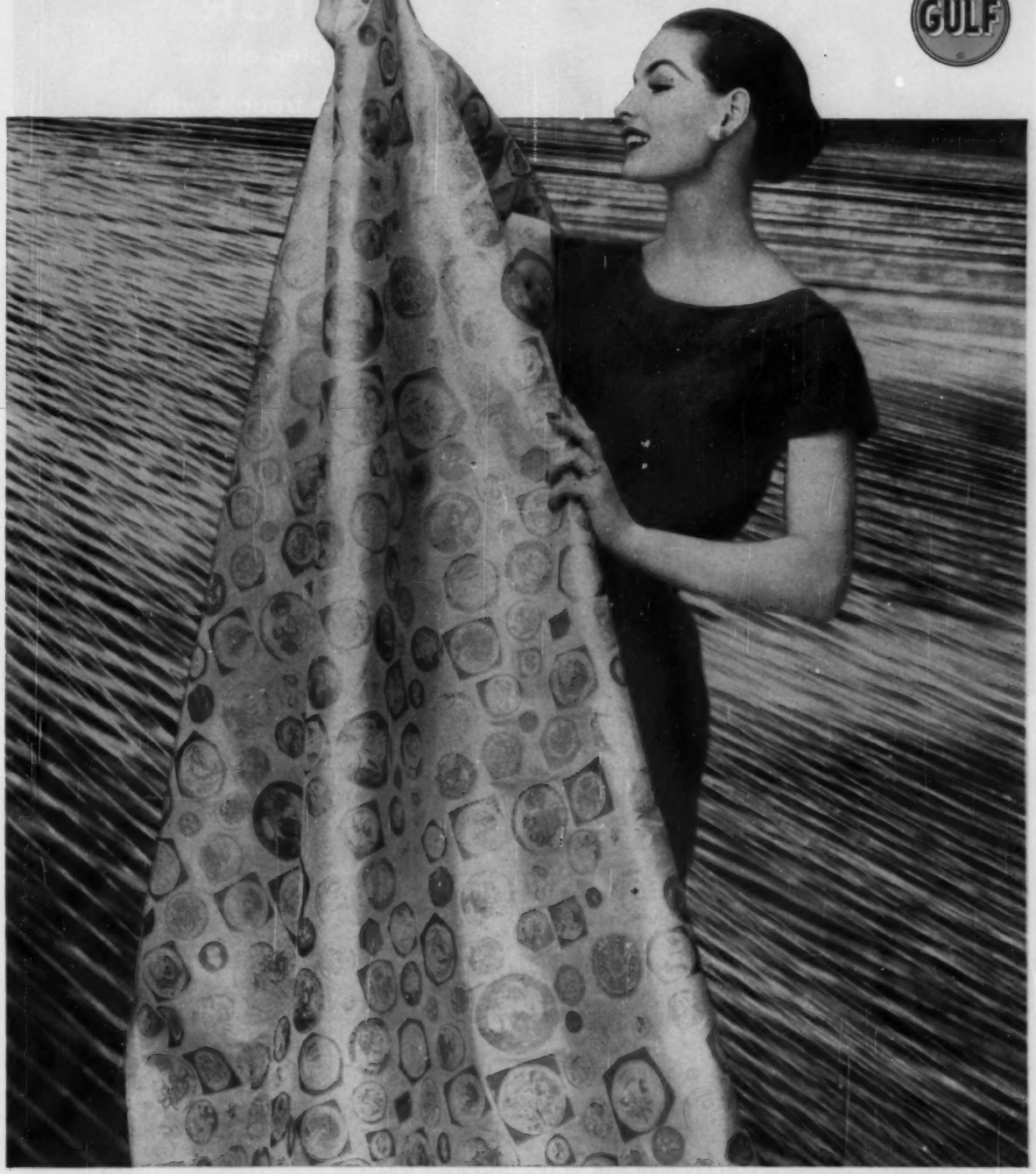
PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill. Branches and Wholesalers Serving All Areas

Unseen thread in the world's finest fabrics . . . Month after month, it's the practical influence of your Gulf Sales Engineer, direct link between America's textile mills and 1300 Gulf scientists and technicians. He can help you keep abreast of advances in petroleum science . . . give you timely answers to problems involving petroleum products . . . bring the resources of Gulf to bear on your specific problems: lubrication, maintenance, processing, fleet operations. He can help you improve your production and save money. Yet this Gulf Petro-engineering Service costs you nothing. Take advantage of it. Phone your nearest Gulf office and ask for a Sales Engineer.

Gulf Oil Corporation, Dept. DM, Gulf Building, Pittsburgh 30, Pa.

GULF



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Many strange fibers are "meeting on the frames" today, as new developments continually increase the number and variety of synthetics and blends.

Controlling these new fibers and filaments in spinning or twisting can be tricky business. And you seldom have much time to experiment. Let Victor *experience* take the place of costly trial-and-error.

Victor "keeps a step ahead" by working with the producers during development of new synthetics. That's why, when they reach you for production, Victor is prepared to help you overcome any new processing problems they present.

When you need help to get top-quality and trouble-free production—with synthetics, blends, or natural fibers—call in a Victor Service Engineer. Write, wire, or phone the nearest Victor office for prompt service.

VICTOR RING TRAVELER DIVISION
OF SACO-LOWELL SHOPS

PROVIDENCE, R. I. . . . 1 Sabin St. . . . . Tel. DExter 1-0737

GASTONIA, N. C. . . . . 914-916 East Franklin Ave. . . . Tel. UNiversity 4-3221

Keep a Step ahead with

VICTOR Ring Travelers

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BOTH ARE OILS—

BUT ONE'S A MASTERPIECE!

In Lubricating Oil, too, there's no substitute for Quality!

"Look-alikes"—in lubricating oils as in oil paintings—can fool you. But they can't fool a machine. Famous Mobil oils prove this point.

You can copy the physical specifications of a Mobil oil, but you can't copy the 91 years of experience and skill that transform these specifications into products of unsurpassed quality. Vary the ingredients or the way they're compounded even slightly, and you wind up with an oil that, at best, may do no harm. But neither can it possibly bring you the benefits the original was designed to deliver.

This *inherent quality* is only part of the Mobil picture. With it goes the world's greatest lubrication engineering service. We analyze your plant machinery—work with your personnel to set up a complete program of *Correct Lubrication* that will improve your production, cut maintenance costs.

Why accept substitutes for *your* plant?

SOCONY MOBIL

Mobil

Leader in Lubrication for over 91 Years

Correct Lubrication

FIRST STEP IN CUTTING COSTS

SOCONY MOBIL OIL COMPANY, INC., and Affiliates: MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP., MOBIL OVERSEAS OIL CO., INC.

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Spin top-quality yarn with Armstrong Accotex Aprons

No matter what fiber you're spinning, the right apron can make an important difference in yarn quality. That's why hundreds of mills have standardized on precision-made Armstrong Accotex® Aprons. These aprons are made by a special patented process that assures top performance, shift after shift.

For double-apron systems, Accotex NO-7075 Aprons have different synthetic rubber compounds on each surface. Each layer is tailored for the special job it must do. The inner—or white—layer is smooth enough to slip over the pins freely, yet it has the right friction to grip the drive roll firmly. The black outer surface is designed to resist abrasion and tearing and has enough friction to keep the top apron spinning without slipping.

Between these layers there is a straight-line cord interliner that keeps the apron from stretching or twisting. This sandwich construction is vulcanized into a seamless apron . . . then ground to the exact dimensions specified for your equipment.

At each step in the manufacture of Accotex Aprons, rigid quality control and high inspection standards keep all aprons identical in every respect . . . in size, in frictional qualities, flexibility, and abrasion resistance.

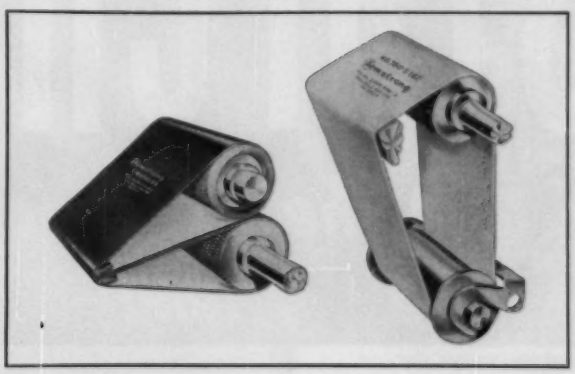
Armstrong research keeps abreast of new developments in spinning equipment to make sure that Accotex Aprons always are available with the right qualities to give top spinning performance on any frame.

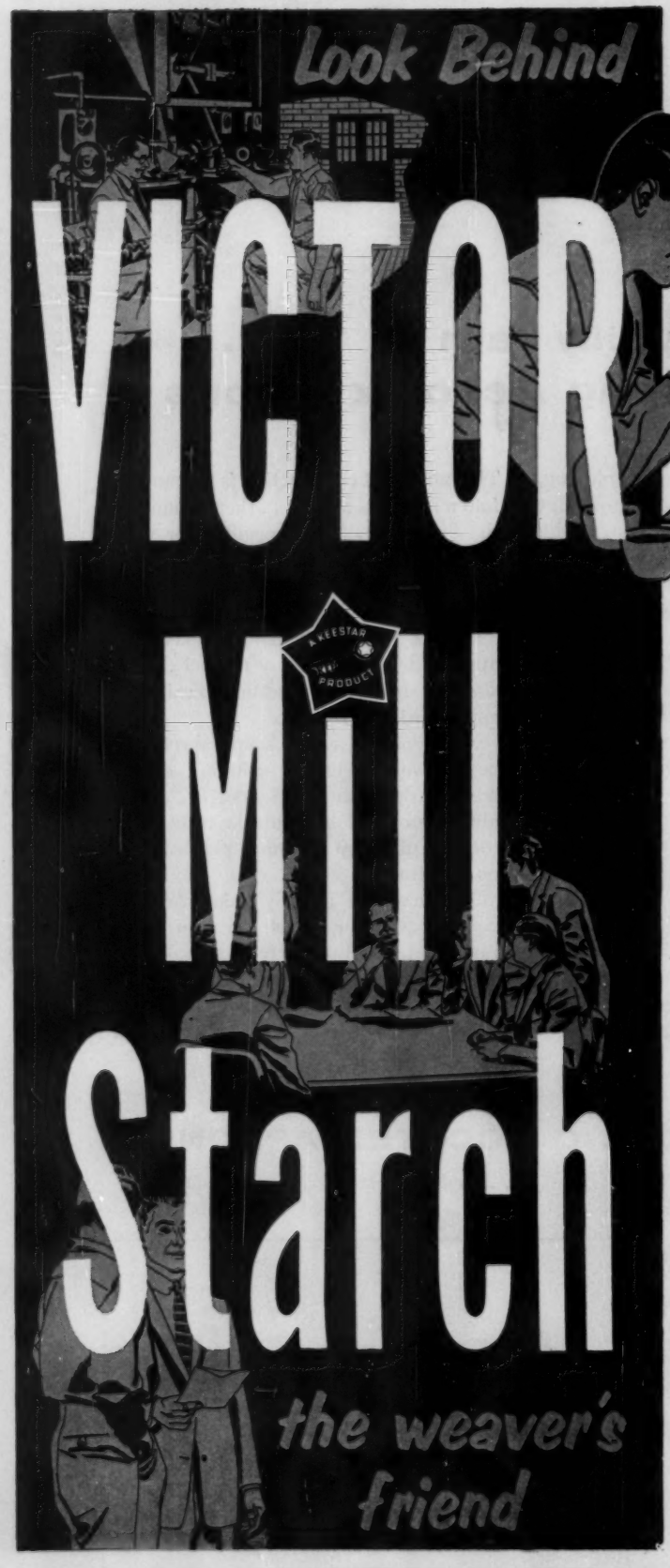
If you're not already using Accotex Aprons, ask your Armstrong man to arrange a test side next time he calls. Or write for more information to Armstrong Cork Company, Industrial Division, 6412 Dauphin Street, Lancaster, Pennsylvania.

Armstrong ACCOTEX APRONS

. . . used wherever performance counts

FOR DOUBLE-APRON SPINNING, use Accotex NO-7075 Aprons. Inner surface grips drive roll firmly, yet slips over pins without jamming. For single-apron spinning, the NO-750 Apron gives the smooth drafting action needed for strong, uniform yarn.





Your Problems Are Our Success

Victor Mill Starches are so noted for uniformity, they are a recognized aid to uniform slashing operations. But that alone can't explain the big preference for Victor Mill and other Keestar products.

Keever goes beyond "delivering the goods." Each sales-service man knows the textile industry. He is a trained specialist in mill problems. He consults with you all down the line utilizing the collective experience of nearly 40 associated textile engineers, chemists and technicians.

The success secret of Keestar products lies in the men who make them – and serve you on the job.

THE KEEVER STARCH CO.
General Offices – Columbus, Ohio

Processors of corn, wheat and blended starches for industry since 1898

Charles T. Seaver, Vice President
TEXTILE SALES DIVISION
1300 S. C. NATIONAL BANK BLDG.
GREENVILLE, SOUTH CAROLINA

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IT'S A FLEXIBLE TEXTILE PACKAGE—WE MAKE IT!

CELLOPHANE

POLYETHYLENE

Textiles are terrific

in customer-catching packages by Shellmar-Betner

SHELL-PLI®
(Carton overwrap of reverse printed acetate laminated to paper.)

You'll make more sales when you wrap the "buy me" appeal of a Shellmar-Betner package around your product. And you'll cut down on lost profits from soilage because your product is perfectly protected.

Whether you choose Shell-Pli, Cellophane, or Polyethylene, you can be sure your product will always look its best. A package by Shellmar-Betner gives your product its own private showcase. And we have the printing craftsmanship to make your name stand out and be remembered.

Why not call Shellmar-Betner today? We'll be glad to design a package for your textile product.

TMP®—*the new science of salesmanship in packaging*

TMP® means "Tailor-Made Packaging"—the kind that strikes the eye, makes customers buy. Whether it's film, foil or paper, we create packages with built-in sales appeal. You'll sell your products best, with TMP.

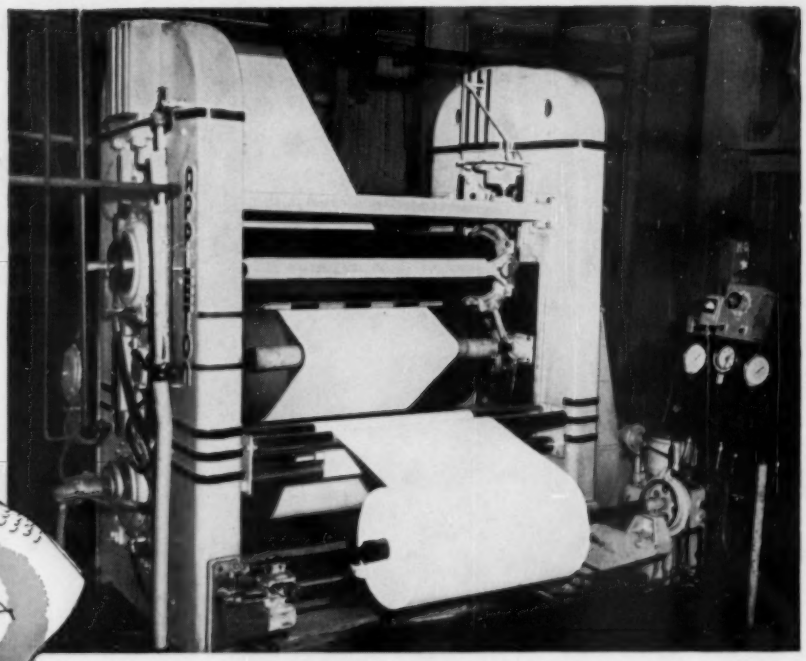
CONTINENTAL CAN COMPANY

SHELLMAR-BETNER DIVISION

SOUTH GATE, CALIF. MOUNT VERNON, OHIO DEVON, PA.

QUALITY PRINTERS AND CONVERTERS OF FLEXIBLE PACKAGING MATERIALS

Choose your Champion

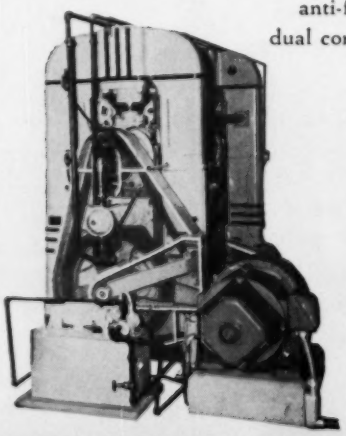


Here is an 80 Ton Appleton 3 Roll Calender in operation

...in Any weight division

The Appleton 3 Roll Hydraulic Friction Calender —available in 40 to 120 Ton models—takes difficult jobs in easy stride, performs dependably day after day, combines speed with consistent quality. Illustrated is the 80 Ton model. Its specialty— Everglaze Glazed finishes.

Long life features include all rolls mounted in anti-friction bearings with force feed oil lubrication . . . dual control pressure system . . . cooling cylinder . . . 40 h.p. Reliance V.S. drive.



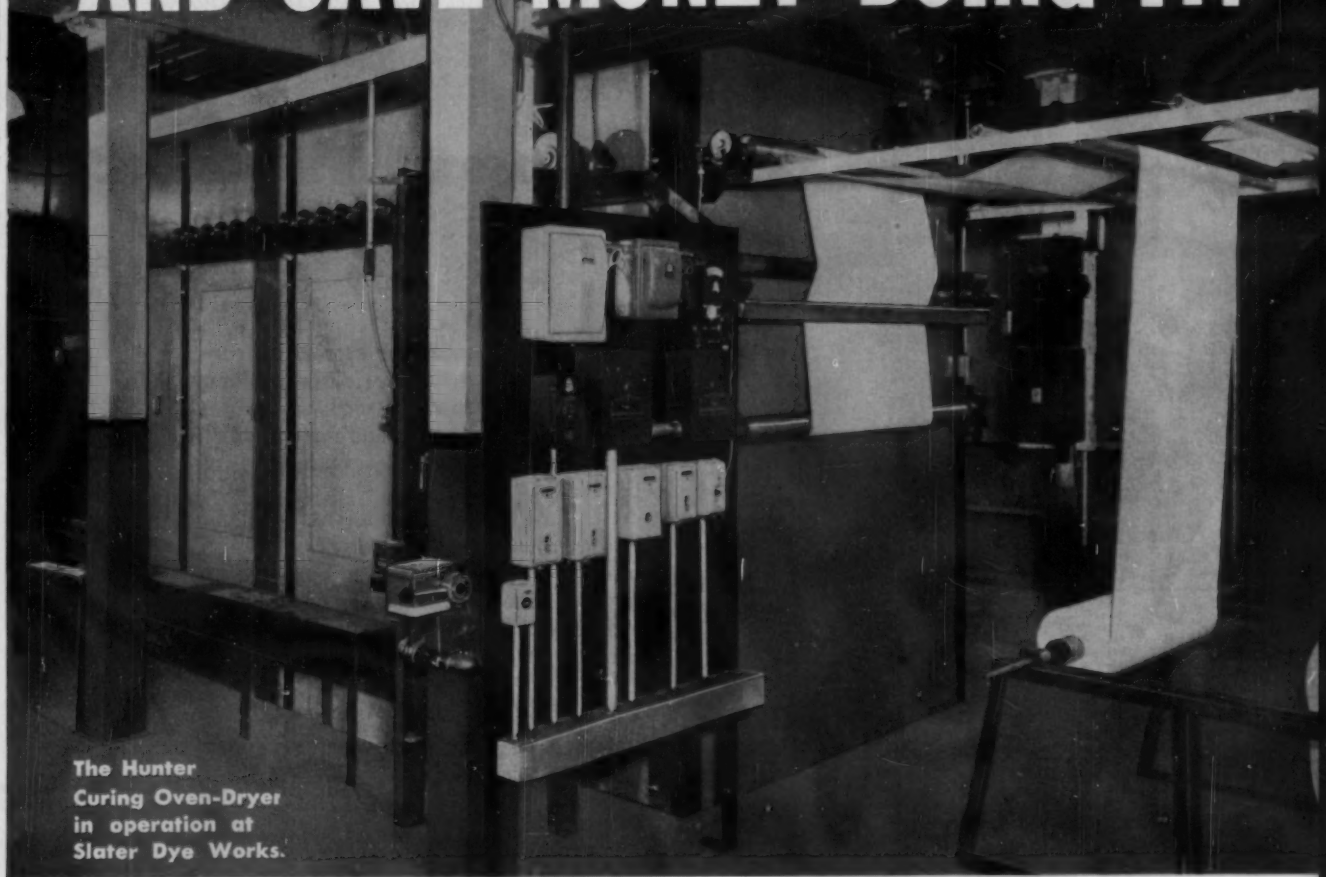
A good decision:

call our representative today and see how modern Appleton equipment can help cut your costs. There is no obligation.

APPLETON MACHINE COMPANY
APPLETON WISCONSIN

CUSTOM-BUILDERS OF TEXTILE CALENDERS • CALENDER ROLLS OF ALL KINDS

CURE OR DRY ALL FABRICS... AND SAVE MONEY DOING IT!



The Hunter Curing Oven-Dryer in operation at Slater Dye Works.

The HUNTER Curing Oven-Dryer (used in range or as an individual unit) is a double-duty machine that not only cures *all* resin-treated fabrics, but also drys all fabrics. As a curing oven, it speeds polymerization of the resin by uniformly heating both sides of the cloth. As a dryer, it provides the most economical drying for cottons, synthetics, wools, and blends. As a curing oven or dryer it offers impressive "plus production" features:

SPACE SAVING — Sectionalized construction allows flexibility in positioning and easy handling of increased capacity installed either overhead or at floor level.

HEAT SAVING — Exclusive Hunter "no-through" metal panel construction *guarantees negligible heat loss.* Keeps heat where it is needed.

IMPROVED QUALITY — Three centrifugal fans, assembled on one shaft in each fan chamber, provide an even distribution across the width of the entire fabric. Air is blown from top and bottom between each cloth passage to assure *even* application of heat to *both sides* of the fabric.

POWER SAVING — This unique Hunter air system is driven at maximum efficiency utilizing a minimum of horsepower.

SIMPLIFIED MAINTENANCE — Large doors permit quick and easy threading, cleaning. Fewer, better parts assure minimum downtime.

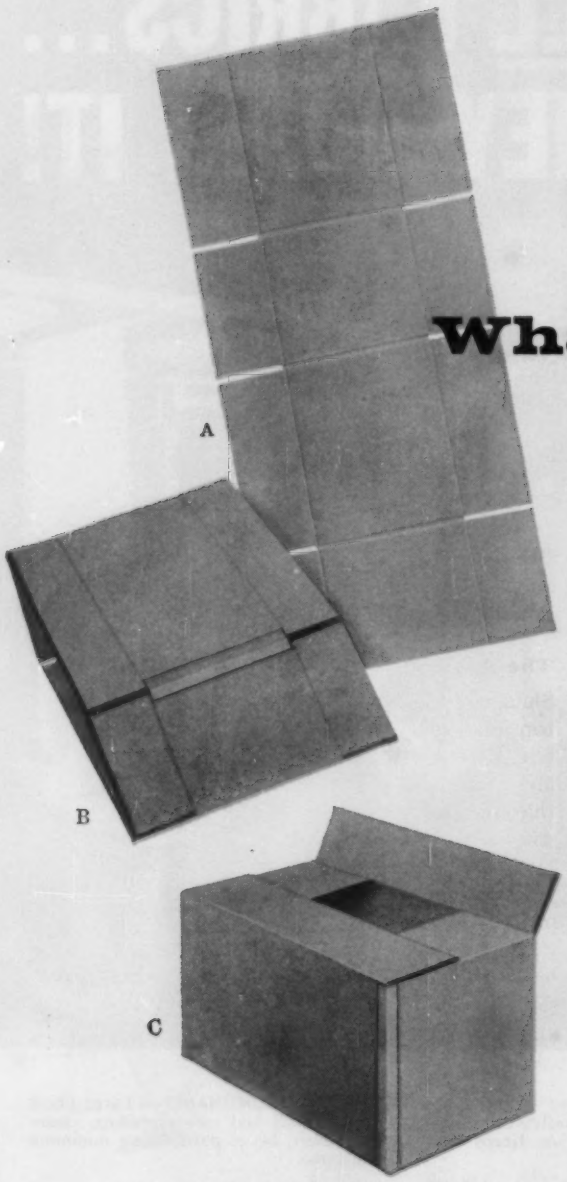
The HUNTER Curing Oven-Dryer can handle *all* fabrics for you, can make money for you. It is in *successful operation* at: **Slater Dye Works, Inc., Palisades Dyeing Corp., Rock Hill Printing & Finishing Co., Allentown Converting Co., Cliffside Dyeing Corp., Santee Prints Works, Attleboro Dyeing and Finishing Corp., Troy Blanket Mills, etc.** Get *all* the facts on the HUNTER Curing Oven-Dryer. Write today for HUNTER Bulletin CO 10.

JAMES HUNTER

JAMES HUNTER MACHINE COMPANY • NORTH ADAMS, MASSACHUSETTS
SOUTHERN SERVICE PLANT: JAMES HUNTER, INCORPORATED • GREENVILLE, S. C.

What you should know about

What should a box



A. Scored and slotted sheet
B. Folded and taped
C. Assembled box

The "creases", or scores, on corrugated boxes facilitate folding. When straight, and properly formed, they make your packing job easier and faster, assure maximum strength and serviceability of the box.

But just being straight isn't enough. Too narrow or too shallow a score sets up internal stresses, makes the box hard to fold. Too deep, weakens the board, makes the fold easy to tear and come apart during shipment.

What makes a perfect score?

Scoring the sheet

It depends largely on the thickness and type of board, the scoring process, what you are shipping, and how it is shipped. First, the score must fold without cracking the board. It must also fold straight, regardless of the direction of the corrugations. It must not cramp the inner liners too much when folded at 180°. And it must, under test, withstand

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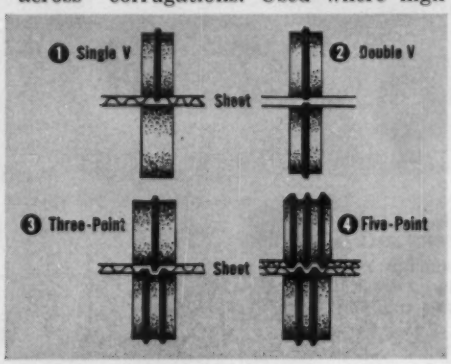
scoring and slotting of Union Boxes

"crease" be...besides straight?

combined tearing, bending and tension forces simulating those it will meet in actual service.

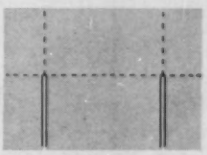
The different kinds of scores

There are four basic methods of scoring corrugated board. 1. The "Single V" crease—most commonly used when the direction of the score is parallel to the corrugations. 2. The "Double V"—generally used *across* the corrugations and where a clean, good-looking fold is essential. 3. The "Three-Point" crease — good both "with" and "across" corrugations. Used where high tearing strength is paramount. And 4., the "Five-Point" crease. This, too, scores both ways. It is used almost exclusively for double wall board.



The importance of slotting

Slots, cut by razor-sharp knives, form the top and bottom flaps of your corrugated box. Each slot must cut to an exact width, and at right angles to the flap scores so that the folded flaps will be perfectly parallel where they come together. The knives must cut a clean slot, without ragged edges or "lint". Improper slotting can seriously impair the appearance and protective qualities of your finished box.


Slots form the flaps

At Union, slotting and scoring of corrugated containers is an exact science. It's one small part of Union's complete structural design service to assure you maximum product protection. It's one of the reasons why Union-engineered boxes are used consistently by shippers in every industry.

union camp

Write for Union's free, informative booklet "Manufacturing Sheets for Corrugated Boxes."

UNION BOXES

UNION BAG-CAMP PAPER Corporation
233 BROADWAY, NEW YORK 7, N. Y.

Factories: *Savannah, Ga.; Trenton, N.J.; Chicago, Ill.; Lakeland, Fla.*

Sales Offices: *Eastern Division—1400 E. State Street, Trenton, N.J.*
Southern Division—P.O. Box 570, Savannah, Ga.; P.O. Box 454, Lakeland, Fla.
Western Division—4545 W. Palmer, Chicago, Ill.

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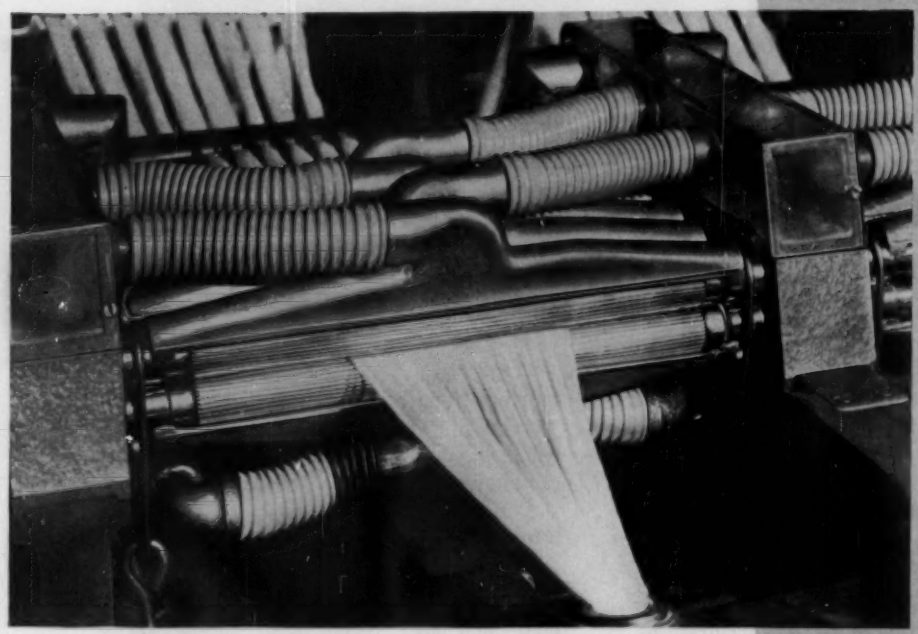
It's New! Vacuum Cleaning* for *Feathertouch* Drafting



New in Principle
New in Efficiency

Like the rest of the Feathertouch Drafting System, our Vacuum Cleaning relies on new scientific design for its exceptional results. It gently picks up dirt, trash, and fly, FROM THE ROLLS instead of sucking them forcibly out of the web. Test frames, in ordinary mill operation show the following results.

LESS STAPLE WASTE Tests show that using vacuum *on the rolls* instead of on the web saves greatly on staple pick up. Less than 1% of the collected waste consists of good staple.

CLEANER SLIVER Although exact records were not kept, the amount of dirt, trash, and fly far exceeded the normal percentage of such cleanings.

LESS LAP UPS Individual roll cleaners and instant knock-off action greatly reduce lap ups.

90% LESS CLEANING TIME No bottom or top clearers to pick.

ELIMINATES SLUBS

INCREASED PRODUCTION The Vacuum Cleaning System permits fuller utilization of Ideal Feathertouch Drafting's tremendous potential speed. Records show a production of 2,100 yards every 17 minutes —370 feet per minute.

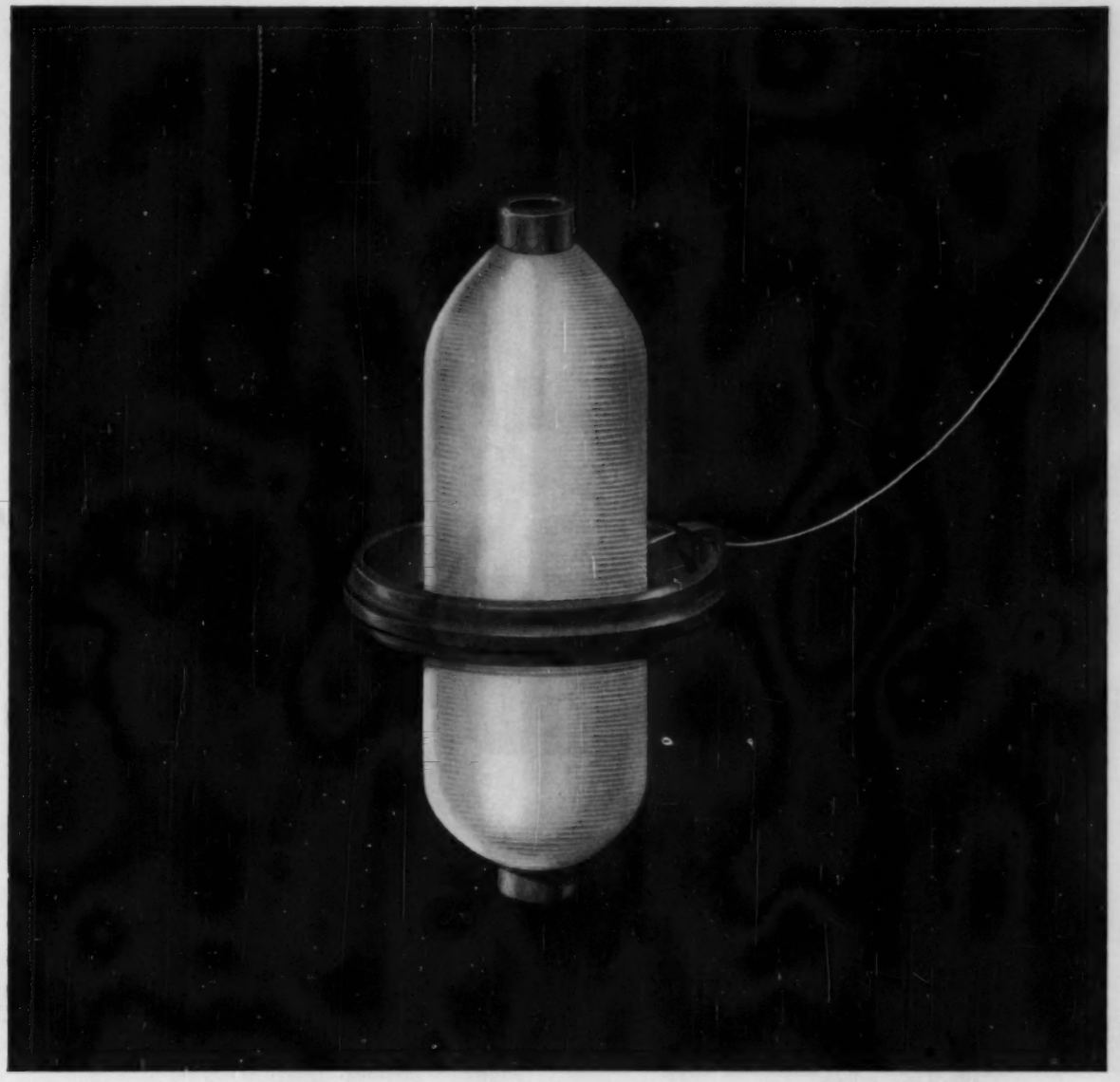
*Pat. Pending

Specifications:

1. Each roll has an individual close-fitting, full-length cleaner.
2. Each delivery has an individual plastic viewing section for visual observation of performance.
3. Each frame has its individual vacuum system and collector box.
4. Does not increase frame height.

Ideal Industries, Inc.
Bessemer City, N. C.

← For more data, write this page number on Reader-Service card.



reduce wear, lengthen life of spindle bearings

Spinesso is a premium-grade lubricating oil for both spinning and twister spindle bearings. Its exceptionally high oxidation stability affords maximum bearing protection – and extends the time between lubrications considerably. Spinesso's high resistance to oxidation inhibits the formation of dark, sludge-like deposits that cause friction in the bolster – and stain yarn.

Spinesso is specially processed to provide an extra measure of protection against wear and to materially reduce rusting and pitting. Thus the problems most frequently encountered in high-speed bearing operations in humid textile mill atmospheres are minimized. Spinesso gives positive protection at all times – even at start-up when immediate and effective lubrication is essential.

Textile mills that have switched to Spinesso report *cleaner, longer-lasting spindle bolsters and blades—with less frequent lubrication.*

Spinesso is available in *three* viscosity grades. Get the whole story on this fine product . . . contact your nearest Esso Standard Oil Co. Division Office: Boston; Pelham, N. Y.; Elizabeth, N. J.; Bala-Cynwyd, Pa.; Baltimore; Richmond; Charlotte; Columbia, S. C.; Memphis; New Orleans.

FOR BETTER RESULTS

SPINESSO

Esso

PETROLEUM PRODUCTS

SPINESSO—Reg. U.S. Pat. Off.

For more data, write this page number on Reader-Service card. →

When fabrics are made with modern Avisco® rayon or acetate

THIS TAG

FINISHED GOODS

Does it matter to you whose rayon or acetate you use? It definitely *should*. Even when the quality and price of competing fibers are identical, there's a big extra advantage built into Avisco fibers — a sales advantage you can't afford to overlook.

This advantage is the Avisco Integrity Tag, a sales and confidence builder for your customers and your customers' customers. It is the most meaningful tag in the market place today because *it's got the most behind it.*

Just what *is* behind the Avisco Integrity Tag?

The most complete fabric testing program in the industry. An independent laboratory approves or rejects fabrics made with Avisco rayon or acetate yarns. The approved fabric can then bear the appropriate Avisco Integrity Tag when made up into garments or home furnishings.

What do they test for?

For most-wanted qualities—such as strength; shrink-resistance; colorfastness to sun, soaking, atmospheric fumes and washing or dry cleaning.

Where do I come in?

When the mill makes fabrics containing 50% or more Avisco rayon and/or Avisco acetate, and in a qualified construction, the converter, end product manufacturer, retailer and consumer all stand to gain. *Without* the mill's initial co-operation, all of this important sales potential is lost.

← For more data, write this page number on Reader-Service card.

CAN MOVE

FASTER IN 1958

How can I make sure that my goods will end up in tagged merchandise?

As a selling point, emphasize to your converter customers that you have done your part to make the goods qualify. Acceptable finishing is up to them. Both of you benefit from the increased sales of finished goods at retail.

How else do I benefit from the Integrity Program?

It's in your interest to help sharpen and back up the claims made for the performance of rayon and acetate fabrics. These represent huge volume potential. The Avisco Integrity Tag is the consumer's assurance of performance-tested fabric quality. It's like an extra salesman on products that carry it.

I've seen a lot of national advertising about the Avisco Integrity Tag. Will this continue in 1958?

Definitely! Dozens of pages of full-color magazine advertising will back the Avisco Integrity Tag throughout the year. *Every ad* makes the public more aware of the tag and what it means.

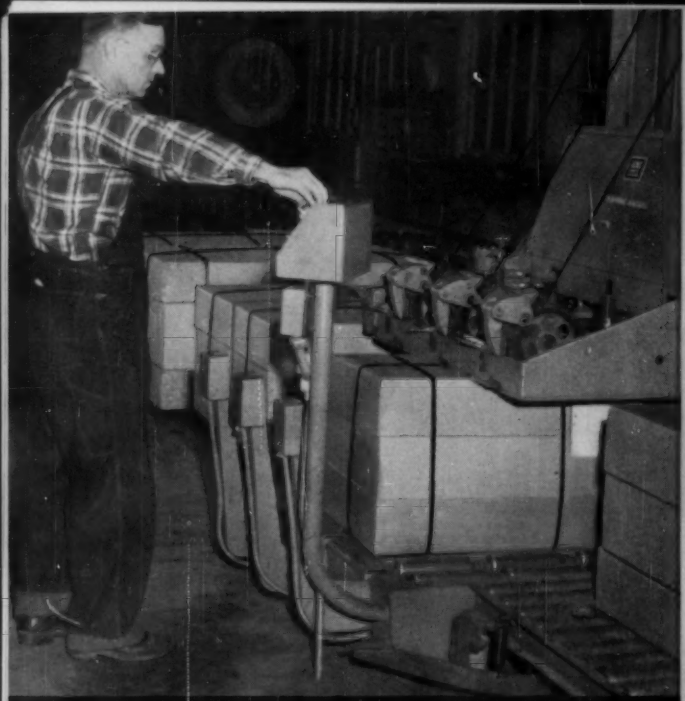
Where can I get a list of fabric standards?

Call LA 4-7200, or write

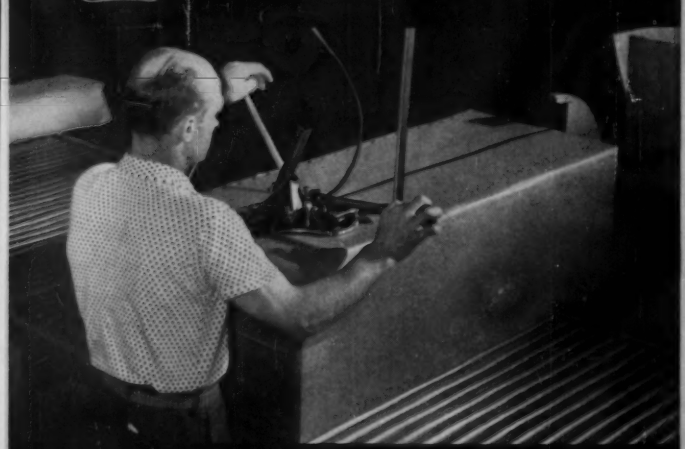
AMERICAN VISCOSE CORPORATION

350 Fifth Ave., New York 1

For more data, write this page number on Reader-Service card. →



ACME STEEL **STEEL STRAPPING** machine compresses and straps telescope boxes of finished goods. *(Idea No. S6-7)*



ACME STEEL **STEEL STRAPPING,** fed from overhead, closes and reinforces boxes of acetate fabrics. *(Idea No. S1-2)*

ACME STEEL **STEEL STRAPPING** closes boxes of finished cloth for safe, secure shipment. *(Idea No. S5-10)*

AIM* for product protection

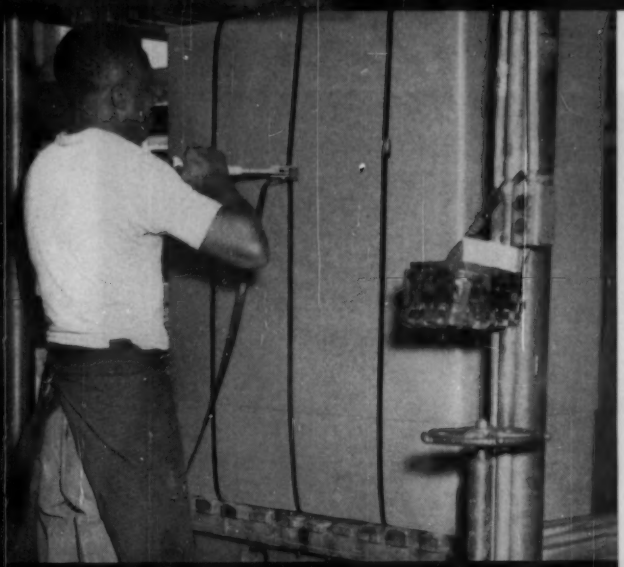
Product protection through Acme Idea packaging can bring you the important benefits of safe, secure packs with increased speed and labor-material economies. Throughout the entire scope of industry Acme Steel Ideas, procedures, tools and materials are protecting and speeding products from production line to end-user. You owe it to yourself to learn how.

A product protection-wise Acme Idea Man is located near your plant. He is immediately available to discuss your packaging problems and provide you with hundreds of in-use Acme Steel Strapping Ideas for better packaging and shipping. The seven Ideas shown on these pages are included in the Ideas-In-Action Report files your Acme Idea Man will be pleased to show you. Among the many Ideas-In-Action Reports Acme Steel has developed from the experiences of dozens of industries are sure to be applications that can be applied to your particular operations with important time and dollar benefits to you.

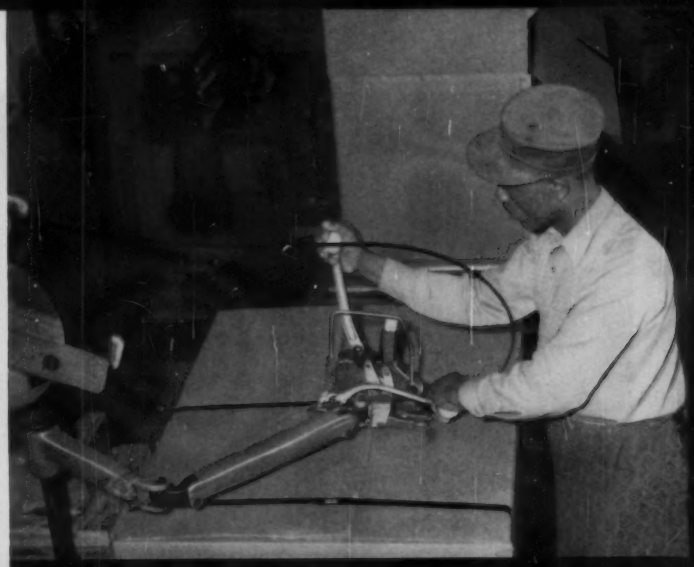
An Acme Idea Man is ready to offer you Ideas-In-Action, plus his training, experience and steel strapping know-how without cost or obligation in any form.

Your *Acme Idea Man can be contacted at the nearest Acme Steel office. Look under "Steel Strapping" in your classified directory, or send the coupon for full information.

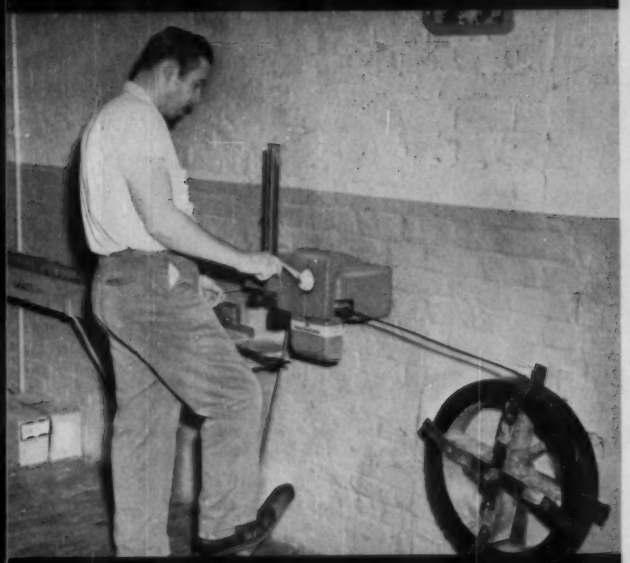
ACME STEEL **STEEL STRAPPING**



ACME STEEL **STEEL STRAPPING** speeds secure closure and reinforcement of boxed finished goods. *(Idea No. S6-8)*



ACME STEEL **STEEL STRAPPING** provides fast, secure closure for large corrugated boxes of yarn. *(Idea No. S5-9)*



ACME STEEL **STEEL STRAPPING** is threaded through seal and cut to length by radial band cutter. *(Idea No. S6-5)*

ACME STEEL **STEEL STRAPPING** is applied to packaged toweling by Steelstrapper mounted over conveyor. *(Idea No. S5-7)*

2 IDEA BOOKS

These two information-packed Acme Steel Idea Books are available to you on request. They will provide dozens of clues to better ways to package and protect your products and plant output.

Write today for your choice of the above two Acme Steel Idea Books. Merely indicate the books you want on the coupon at the right and mail. Your request will be filled promptly, with no obligation.

Acme Steel Products Division
ACME STEEL COMPANY, Dept. TAS-127
Chicago 27, Illinois

Please send me the new Acme Steel Idea Books I have checked below:

☐ Steel Strapping Catalog ☐ Unitizing Catalog
☐ Have an Acme Idea Man call.

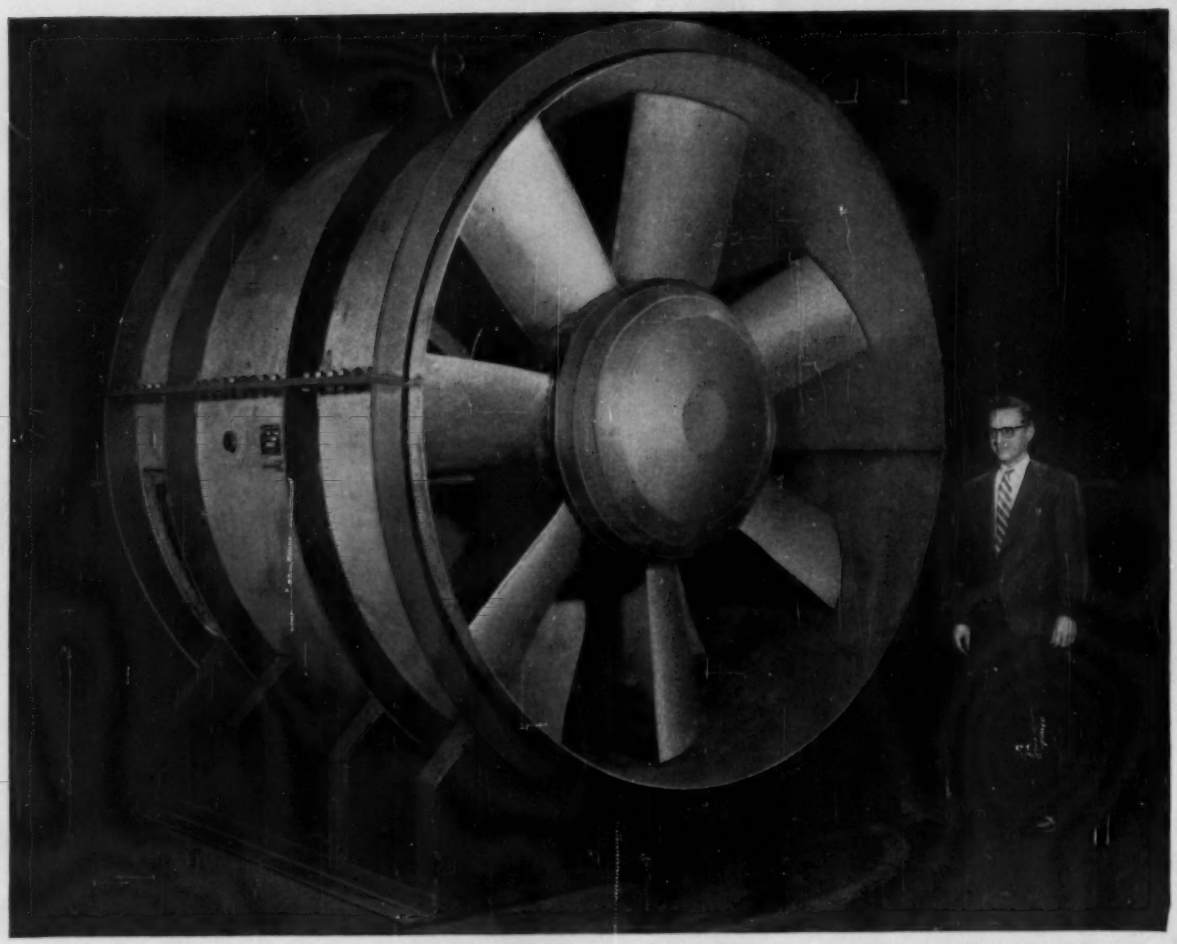
Name_____

Title_____

Company_____

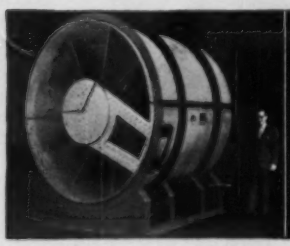
Address_____

City_____ Zone____ State_____

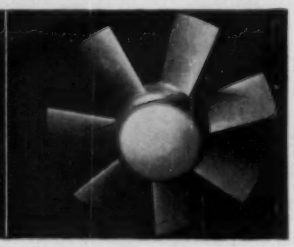


"BUFFALO" SPECIFIED BY RAYON MILL IN THREE MAJOR FAN INSTALLATIONS!

Above is the fourth giant "Buffalo" Vaneaxial Fan furnished to a rayon mill in India since 1950. Of stainless steel construction with a 96" cast aluminum airfoil wheel, it delivers 210,000 cfm against 2.1" pressure at 110° F. under slightly acid conditions and is powered by a 125 HP, 980 RPM motor. This is a repeat order of a duplicate Vaneaxial supplied to the same mill in 1954, which in turn, followed two similar 84" Vaneaxials shipped in 1950. Supplied with each of these Vaneaxials were "Buffalo" Centrifugal Fans ordered and re-ordered on the strength of performance and durability on the job!



Outlet side of 96" "Buffalo" Vaneaxial Fan showing fixed directional vanes which smooth air flow for high efficiency. Note streamlined fairing for V-belt drive. All parts in contact with acid air stream are stainless steel.



Efficient airfoil wheel used in "Buffalo" Axial Flow Fans has blades with pitch which changes from smooth hub to tips, producing uniform air flow and low rotor speeds; tested for strength in "Buffalo" Vacuum-pit and factory-balanced.

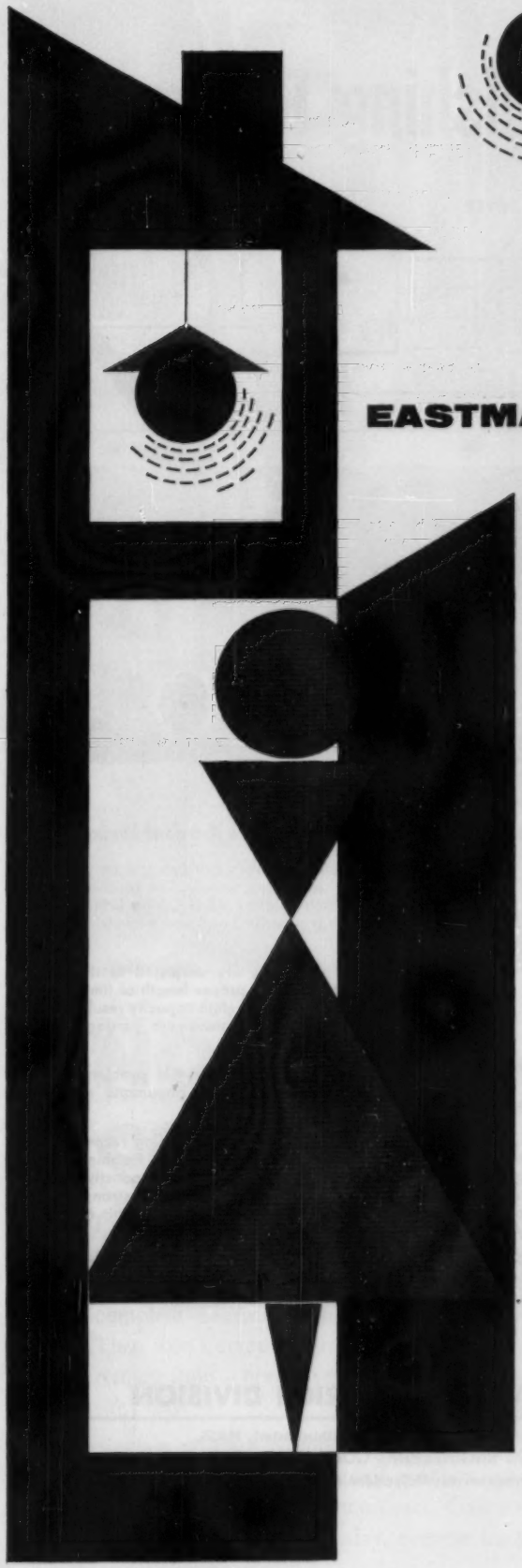
WHERE IS "BUFFALO" AXIAL FLOW YOUR BEST CHOICE? Write for Bulletin 3533 for full details and performance chart to aid you in making the best fan selection.

BUFFALO FORGE COMPANY

BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING FORCED DRAFT COOLING HEATING PRESSURE BLOWING



true-blue

indoors and out

EASTMAN POLYESTER BLUE 3RL

New Eastman Dye Does Not Flare Red Under Artificial Light

Seldom has a new dye had such rapid trade acceptance as Eastman's Polyester Blue 3RL. And with good reason. Polyester fabrics and their blends dyed with this truly outstanding blue dye *do not flare red under artificial light.*

Moreover, this Eastman polyester dye has better resistance to sublimation than ordinary polyester dyes offer—an important advantage in suitings. Eastman Polyester Blue 3RL has excellent processing characteristics...good build-up, good exhaustion and outstanding leveling properties.

Eastman Polyester Blue 3RL is a bright shade of reddish blue. Dyers looking for economy plus performance find Eastman Polyester Blue 3RL an excellent blue component for navies, dark browns, tans and blacks.

Polyester Blue 3RL is only one of eleven primary and shading colors comprising Eastman's new series of dyes developed specifically for use with polyester fibers.

Eastman polyester dyes exhibit excellent fastness to washing, light, dry cleaning and wet pressing. In fact, this new series of polyester dyes, evaluated in laboratory and commercial tests, provides the best over-all fastness properties of any group of polyester dyes currently available.

Dyeing of polyester fabrics is easily accomplished with carriers or dyeing assistants, although these are not required if the dyeing procedure is carried out at high temperature (250°F). Fibers can be readily dyed in tow, tops, stock, or fabric forms. Fabrics of polyester filament can be conveniently dyed in jigs. Fabrics woven of spun polyester yarns alone or blended with cotton, viscose, or wool can be easily dyed in dye-becks.

Tests show Eastman polyester dyes work well in combination with premetalized wool dyes in dyeing polyester fiber-wool blends, and with virtually all types of viscose dyes in dyeing blends containing viscose or cotton.

Ask your Eastman representative to show you color samples of these new, superior polyester dyes:

Eastman Polyester Yellow RL
Eastman Polyester Yellow W
Eastman Polyester Yellow 5R
Eastman Polyester Red B
Eastman Polyester Red 2G
Eastman Polyester Dark Red FL
Eastman Polyester Blue GR
Eastman Polyester Blue GLF
Eastman Polyester Blue 3RL
Eastman Polyester Navy G
Eastman Polyester Black RB

Eastman Polyester Dyes

Eastman Polyester Dyes are sold in the United States by EASTMAN CHEMICAL PRODUCTS, INC., a subsidiary of EASTMAN KODAK COMPANY, in Kingsport, Tennessee; Lodi, New Jersey; and Greensboro, North Carolina. On the West Coast through Wilson Meyer Co., San Francisco, Los Angeles, Portland, Seattle, Salt Lake City. In Canada through Clough Dyestuff Co., Ltd., St. Laurent, P.Q.

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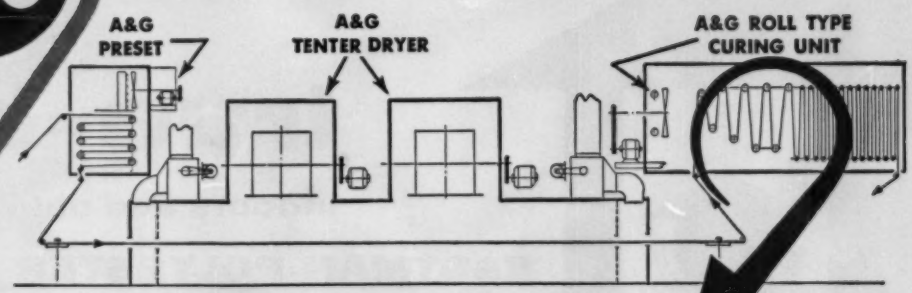
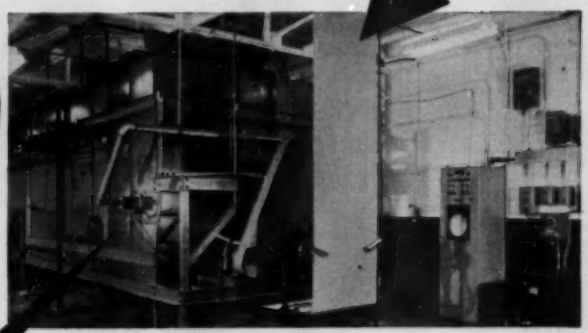
The A&G Resin Finishing Range

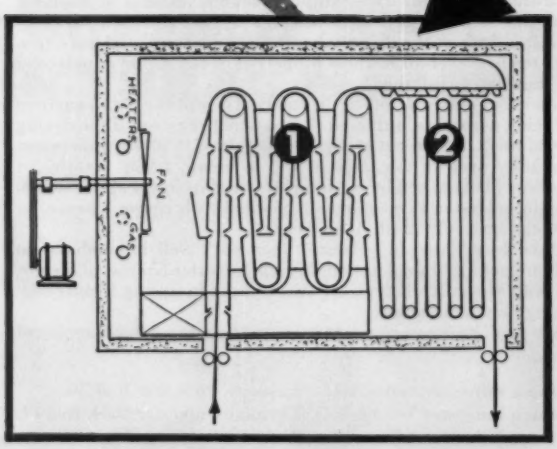


AN EVEN CURE

A SUPERIOR HAND

WRINKLE FREE





Study this A&G CURING UNIT. Note the dual zoning.

1. *Heat Up* Zone where the goods are brought up to the curing temperature quickly yet evenly. The resulting hand is superior. The cloth is in the A&G Curing Unit a shorter time, resulting in a superior hand and minimizing losses in tensile strength.

2. *Hold* Zone where the goods are subjected to the proper curing temperature for the proper length of time. Uniform temperature with maximum cloth capacity results in effective curing combined with maximum yardage per minute.

The A&G Free-Wheeling Drive eliminates wrinkle problems and minimizes width loss with trouble-free pneumatic or mechanical clutches on all top rolls.

The A&G Resin Curing Unit has made an outstanding record in many mills, both as part of the complete A&G Finishing Range and as individual units. Its efficiency and productive capacity are so outstanding that you should consider it strongly for your *next* installation . . . as a modernization unit or for your expansion program.

A&G Units Include: Tenter Dryers, Predryers, Dye Range Dryers, Skein Dryers, Loop Dryers, Warp Dryers, Stock Dryers, Resin Curing Units, Cloth Conditioners, Carpet Dryers.

THE ROSS GROUP
OF COMPLEMENTING SERVICES

J. O. Ross Engineering Corporation, New York
Andrews and Goodrich Division, Boston
Ross Engineering of Canada Limited, Montreal
Ross Midwest Fulton Corporation, Dayton
Carrier-Ross Engineering Company, Ltd., England
John Waldron Corporation, New Brunswick, N. J.

ANDREWS & GOODRICH DIVISION

336 Adams Street BOSTON (Dorchester), MASS.
J. O. ROSS ENGINEERING CORP., NEW YORK, N. Y.
***Southern Representatives:* McSpadden & Scantland, Charlotte, N. C.**

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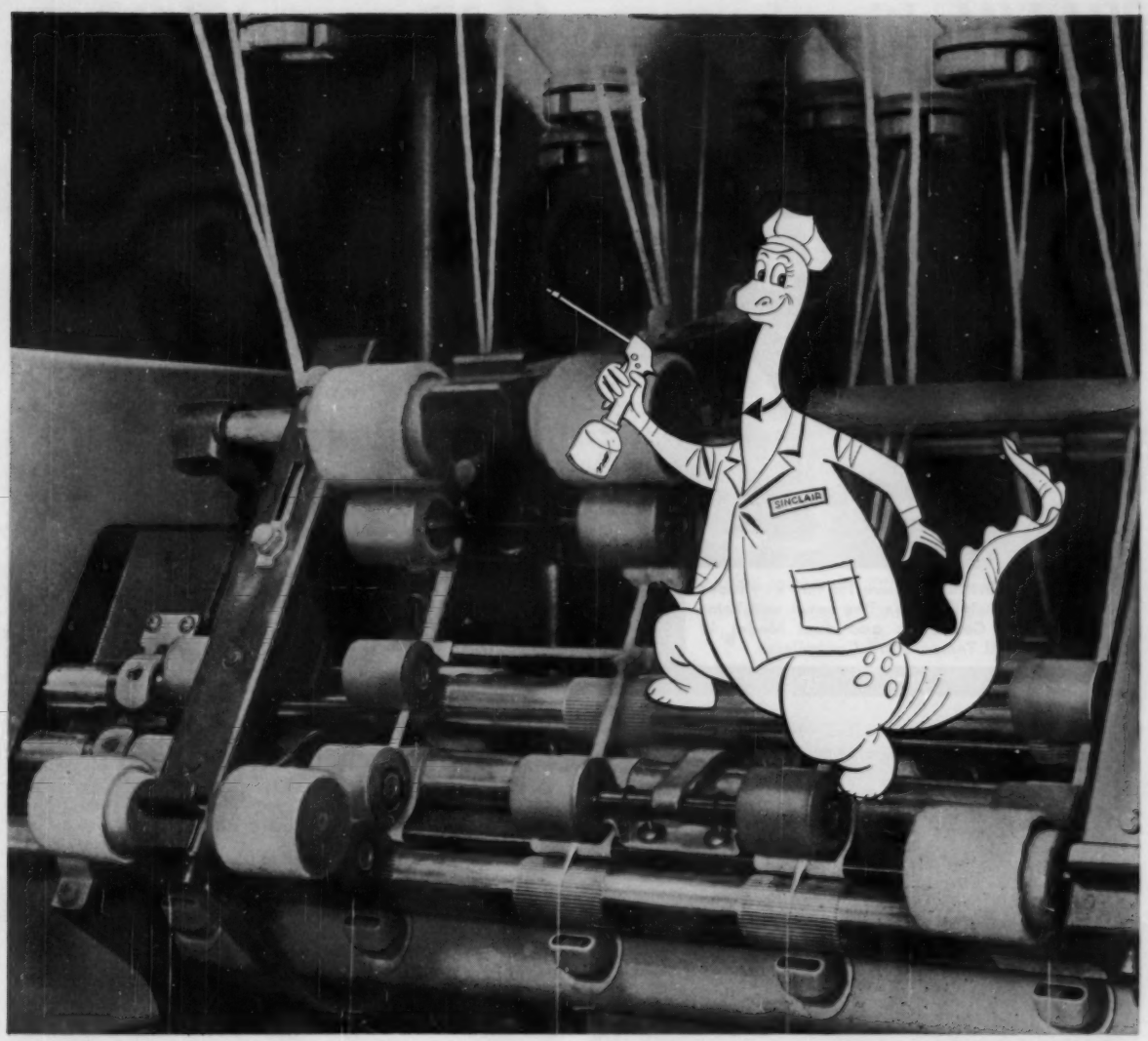

Maintenance tips from Dino, the Sinclair Dinosaur

NO-DRIP won't creep- can't create spoilage

Protect your yarn and roll coverings from needless spoilage...switch to Sinclair NO-DRIP lubrication! These outstanding lubricants give complete bearing protection, yet stay put. They won't creep or throw out of bearings—remain fluid—permit rolls to turn easily and smoothly.

Sinclair NO-DRIP Numbers 8, 12, 15 and 17 can save you money through smooth operation and low maintenance costs. Call your Sinclair Representative today, or write for the new NO-DRIP pamphlet to Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N. Y. *There's no obligation.*

SINCLAIR

NO-DRIP TEXTILE LUBRICANTS

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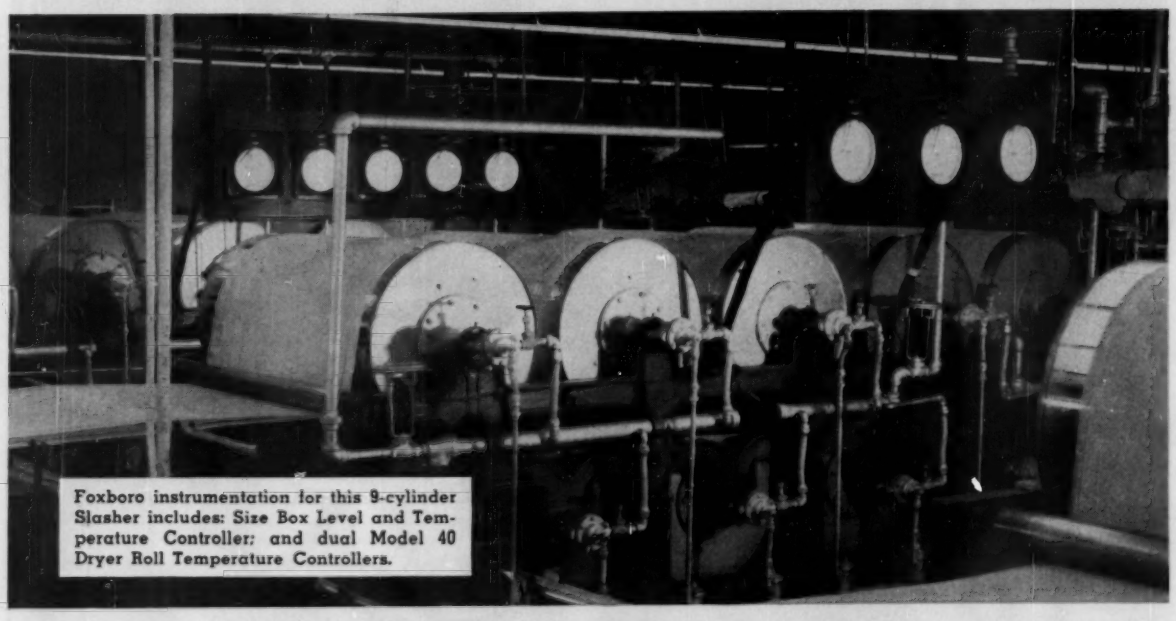
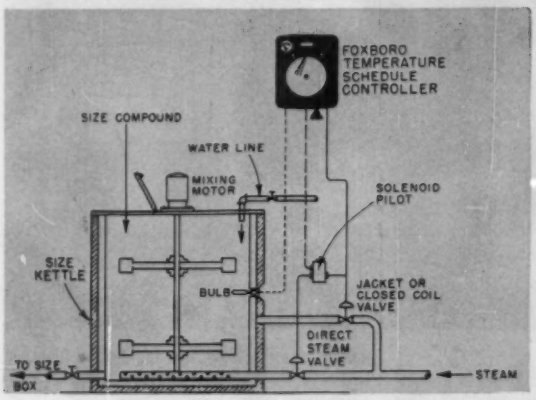
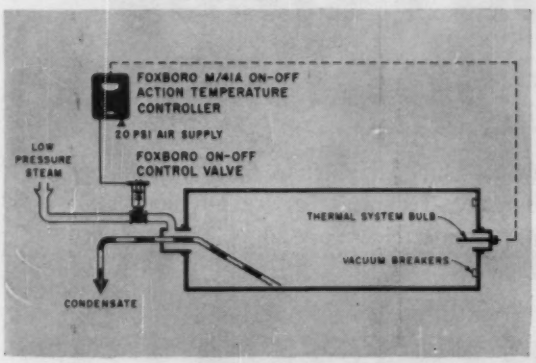
FOXBORO AUTOMATES THE SLASHER ROOM!



Foxboro instrumentation for this 9-cylinder Slasher includes: Size Box Level and Temperature Controller; and dual Model 40 Dryer Roll Temperature Controllers.



Foxboro Dual-Purpose Size-Kettle Control



Foxboro On-Off Control System for Dryer Rolls

complete control system:

- **cooks – stores size at proper temperatures – automatically**
- **holds dryer roll temperatures constant – automatically**
- **maintains pneumatic loading of squeeze rolls – automatically**

From size box to dryer roll you can depend on Foxboro control to increase the efficiency of your Slasher operation.

Take Foxboro's Dual-Purpose Size-Kettle Temperature Schedule Controller, for example. This exclusive instrument controls the temperature of BOTH size cooking and storage — with direct steam and jacket heating. Temperature shifts are automatic — no hazards of boil-over. And size dilution is completely eliminated — regardless of storage time.

Or take Foxboro Dryer Roll Temperature Control. This simple, on-off system developed by Foxboro eliminates compressed air purge in the removal of steam condensate . . . even as low as 140°F!

And for over-all Slasher Room efficiency, don't overlook size box level control, viscosity recording, and pneumatic squeeze roll loading. These, too, are Foxboro-engineered to improve yarn quality . . . automatically. Write today for full details. **The Foxboro Company, 8412 Neponset Ave., Foxboro, Mass., U.S.A.**

FOXBORO REG. U.S. PAT. OFF. **SLASHER ROOM CONTROL**

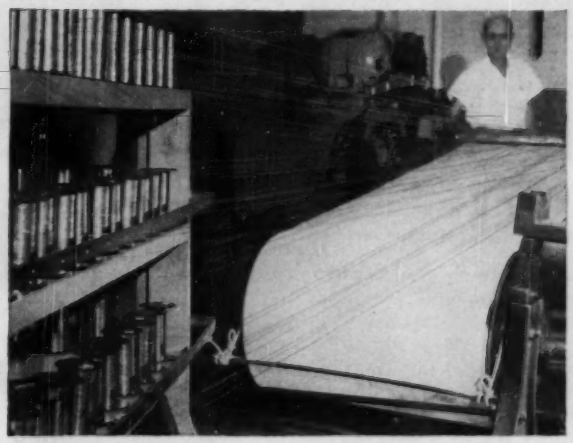
Here's how metallic yarns made with MYLAR® helped Callaway Mills solve a production problem... and increase sales

E. Douglas Miller
Callaway Mills

"For years we were looking for a practical metallic yarn to use as a decorative trim on towels," reports E. Douglas Miller, Towel Division Sales Manager of Callaway Mills. "After the new metallics made with 'Mylar' became available, we conducted extensive tests on bleaching, dyeing and production, and then tests on the finished product in the home.

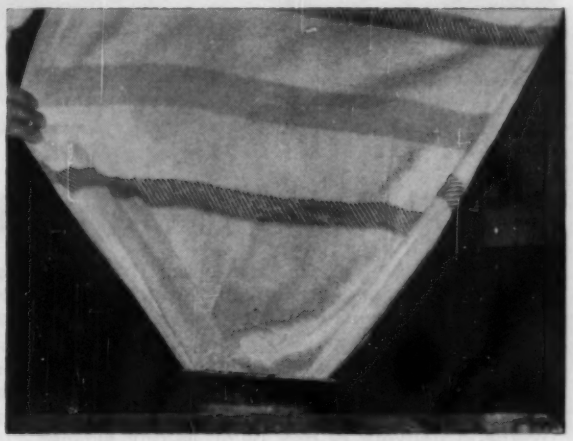
"Our early confidence in the sales value of metallics in towels has been vindicated. These colorful towels, which complement the décor of modern homes, have been in constant demand."

Because non-tarnishing metallic yarns made with Du Pont "Mylar"* polyester film are thinner, their yield in 1,000 lineal yards per pound can be 1½ to 3 times greater than older types of metallics. When comparing costs on a lineal-yard basis, you'll be surprised at the close comparison. For a booklet outlining the new qualities found in metallic yarns made with "Mylar", send in the coupon below. Be sure to mention your specific type of fabric or equipment.



Metallic yarn made with MYLAR can be run unsupported.

"Mylar" is 50 to 200% stronger, with 10 to 15 times the flex life of other films used for metallic yarns. The exceptional strength found in metallic yarns made with "Mylar" means smooth operation on looms and knitting machines.



Metallic yarn made with MYLAR will stand up under wash tests using chlorine base.

Metallic yarns made with "Mylar" have the chemical resistance to pass 20 washings under the AATCC Test #3. What's more, metallic yarns made with "Mylar" resist water, practically all solvents and most acids and alkalies.

MYLAR® MAKES THE MODERN DIFFERENCE IN METALLICS!

Metallic Yarn made with DU PONT MYLAR® POLYESTER FILM

DU PONT
REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

*"Mylar" is a registered trademark for Du Pont's brand of polyester film. DuPont manufactures the base material, "Mylar"—not finished metallic yarns.

Film Dept., Room TW-12
E. I. du Pont de Nemours & Co. (Inc.)
Wilmington 98, Delaware

Please send me Du Pont's new 20-page booklet on metallic yarns made with "Mylar" polyester film.

*Name*_____ *Title*_____

*Firm*_____

*Address*_____

*City*_____ *State*_____

*Specific interest*_____

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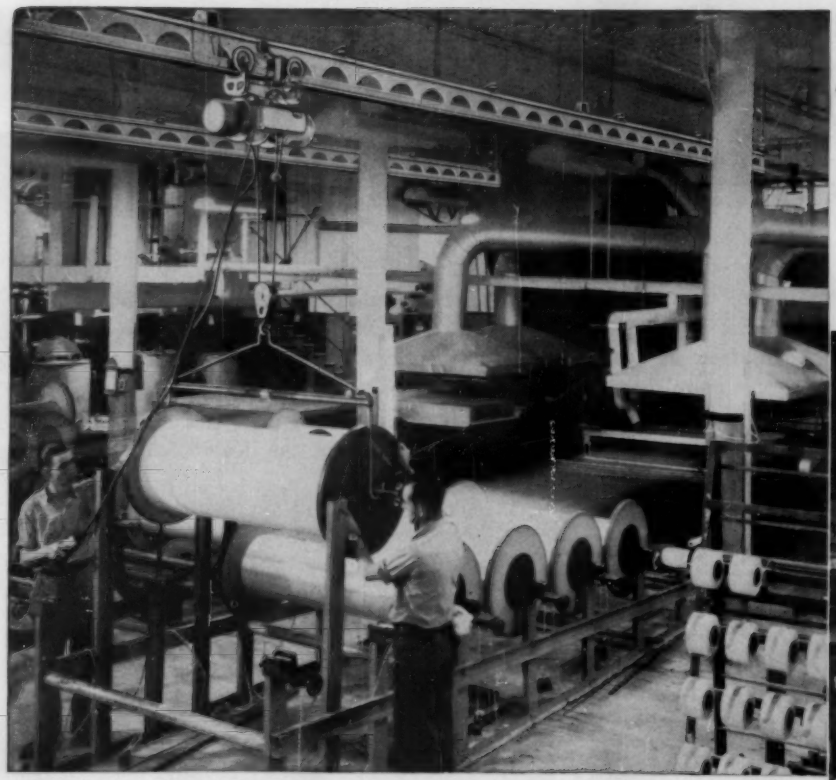
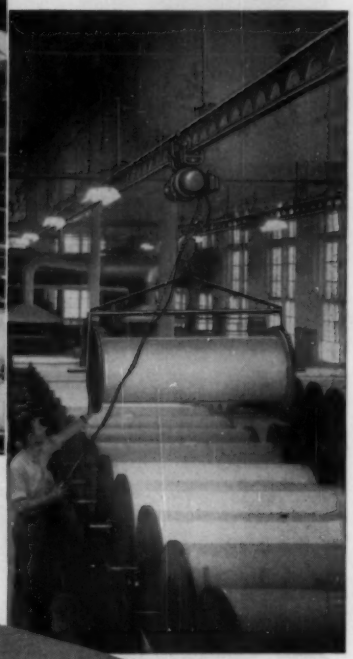


The Tramrail system permits handling beams from warp beam storage to slasher and thence to loom beam storage, entirely by the overhead route. Travel from point to point is direct; no manual lifting or rehandling.

Beams are easily handled in and out of the warp beam storage. The four double-deck racks accommodate a total of 176 beams.



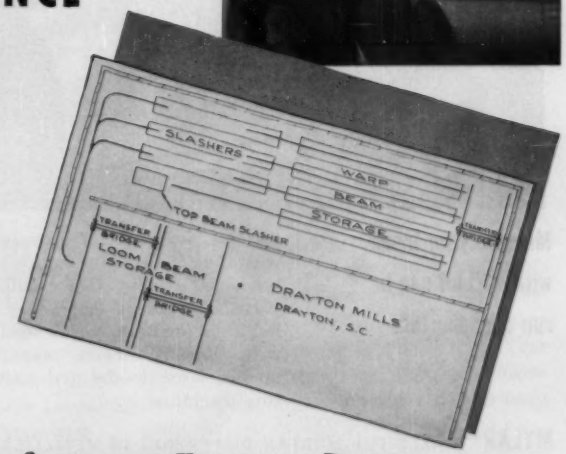
BEAM HANDLING SYSTEM PROVIDES SAFETY and CONVENIENCE

A simple hand-propelled Cleveland Tramrail System handles all beams in and out of the warp beam storage and into the slashers at the Drayton Mills, Spartanburg, S. C.

A 1000 lb. carrier travels on a transfer bridge and on four tracks over the beam storage racks. The bridge may be interlocked with any of the tracks, enabling overhead delivery of any beam to any slasher.

Loom beams are taken directly from the slashers to a large storage section by a manually operated Tramrail carrier which can be run onto either of two interlocking transfer bridges there.

The Tramrail system makes beam handling easy and enables orderliness and greater efficiency.



GET THIS BOOK!
BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
8469 East 287 Street, Wickliffe, Ohio

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

For more data, write this page number on Reader-Service card.

EXPERIENCE *is the Greatest Teacher*

Gaston County Dyeing Machine Company was founded in 1921 by R. F. Craig, well known textile executive and mill owner. Mr. Craig served as president of the company until his death in 1946.

The affairs of the company are now under the direction of the second and third generations of the Craig family. H. M. Craig, son of the founder, has been affiliated with the firm during its entire 36 year history. R. P. Craig, another son of the founder, has been connected with the firm for 15 years, and H. M. Craig, Jr., has completed 5 years of service. Important members of the executive staff are George Hacker with 20 years of service and his son, Gordon Hacker, with 10 years of service with the company.

A considerable number of production employees have been with the company since its beginning and many others have service records of 25 years and longer. Until the recent expansion program required the employment of additional skilled workers, the average service record of all employees was about 15 years. Most of the new employees are skilled men with previous experience in other plants doing work of a similar nature.

There is no Substitute for Experience

GASTON COUNTY DYEING MACHINE CO.

STANLEY NORTH CAROLINA + ESTABLISHED 1921

DESIGNERS AND BUILDERS OF DYEING, BLEACHING, EXTRACTING AND DRYING MACHINES

Stainless Steel Fabricators — Process Tanks and Pipe

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Now a 2nd Hi-Torc—
the NEW Gessner 30 Roll Hi-Torc Napper

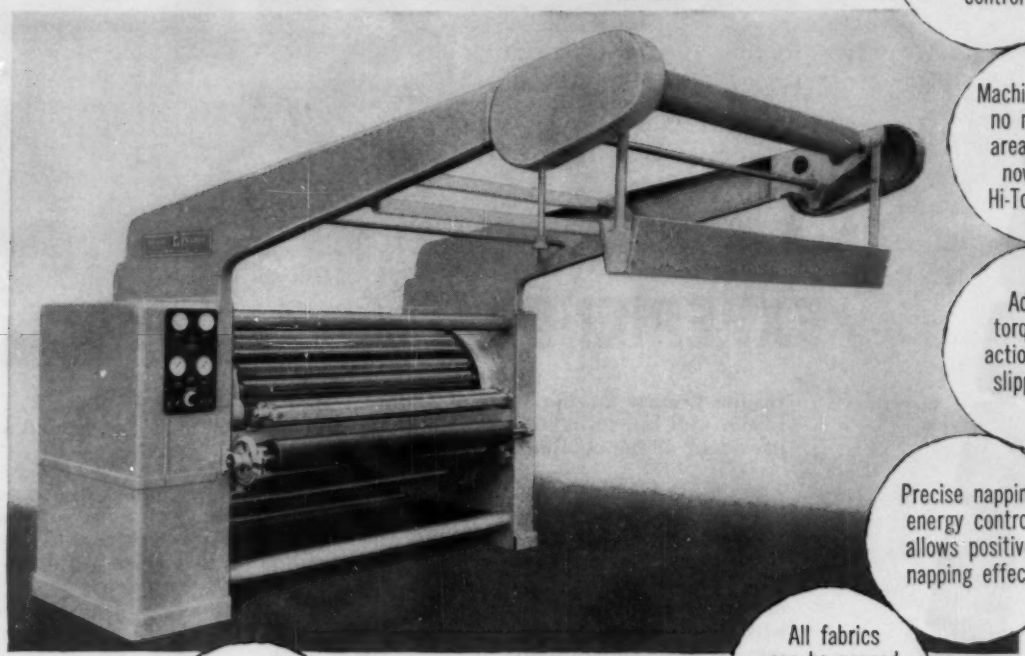
Field of napping greatly broadened to include greater range and weight of fabrics

Wide acceptance of Gessner's Hi-Torc principle led to this newest napper

Much more nap in much less time

Greater roll torque available under finger tip control

Machine occupies no more floor area than the now-famous Hi-Torc Napper



Adjustable torque-raising action prevents slipped filling

Precise napping energy control allows positive napping effect

All fabrics can be napped with maximum torque raising action

Exact duplication of raising action through hydraulic control system

Breaking, raising and finishing can be done on one machine

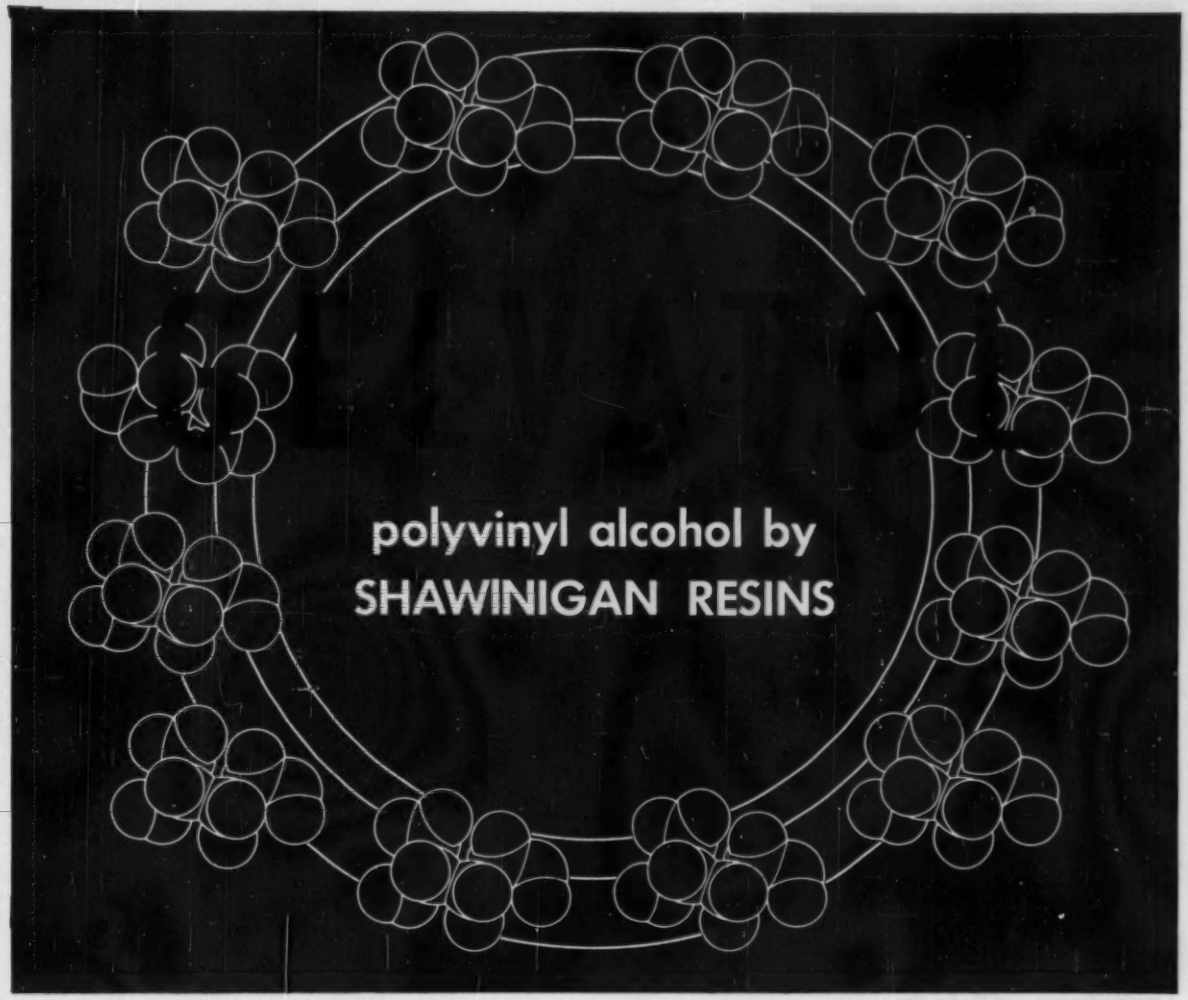
Felting action obtained by the simple turn of control knobs.

DAVID GESSNER CO.

WORCESTER, MASS.

Southern Representative: Richard L. Bernard, 222 Piedmont Bldg., Greensboro, N. C. Western Representative: E. G. Paules & Co., 1762 West Vernon Ave., Los Angeles, California
Canadian Representative: W. J. Westaway, Montreal, Quebec, Hamilton, Ontario

Gessner Improved Cloth Finishing Machines maintain a standard of performance to meet the exact requirements of your cloth finishing.



available in 12 grades

Twelve grades of commercially proved GELVATOL now are at your disposal for more efficient, more profitable formulating. This series of resins is of unequaled quality and uniformity . . . features which have been proved on the production line.

Consider these advantages:

1. Notable uniformity from bag to bag, lot to lot.
2. Particle size minimizes product loss caused by dusting.
3. High bulk density reduces size of 50 lb. bag . . . makes it easier to handle—cuts storage space requirements.
4. High quality—less tendency for the resin to lump when added to water—you get clear solutions fast.

Standard grades of GELVATOL are suitable for all applications including adhesives, textile sizes, paper coatings, and films. What's more, the new, extremely low viscosity grades offer a unique combination of properties for specialty applications.

Whatever your needs, remember that in GELVATOL there is the *right* grade for you. Write today for full technical information and sales service, to Shawinigan Resins Corporation, Dept. 4312, Springfield 1, Mass.

SALES OFFICES: ATLANTA CHICAGO LOS ANGELES
NEW YORK SAN FRANCISCO

GELVATOL®— *polyvinyl alcohol by*

SHAWINIGAN RESINS®

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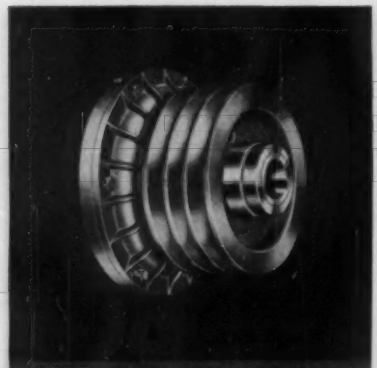


FLEXIDYNE

THE DRY FLUID DRIVE

NEW DRIVE INSURES AMAZING SOFT STARTS FOR TEXTILE MACHINERY!

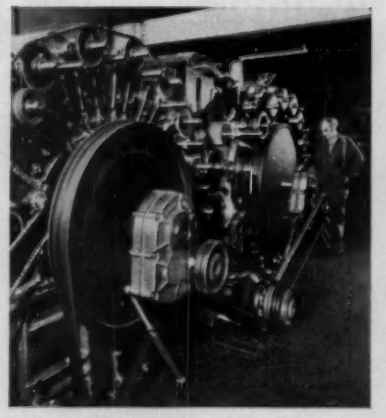
Flexidyne is an entirely new type of drive in which a dry flow charge of heat treated steel shot is employed to start loads *with fluid ease.* It accelerates quickly to full speed—and then operates *without slip at 100% efficiency.*

This revolutionary drive is being used with great success in:

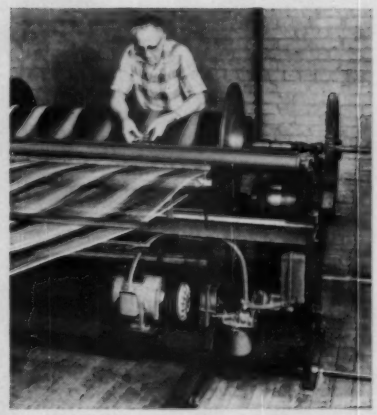
- cotton cards
- wool cards
- roving frames
- fly frames
- spinning frames
- slubbers
- openers
- tenter frames
- condensers
- extractors
- pickers
- beaters
- twisters
- warpers
- slashers
- cloth rolling heads
- cloth shearing machines
- and for synthetics, too

Ask your Dodge Transmissioneer for the full story. Or write us for Bulletin A-653.

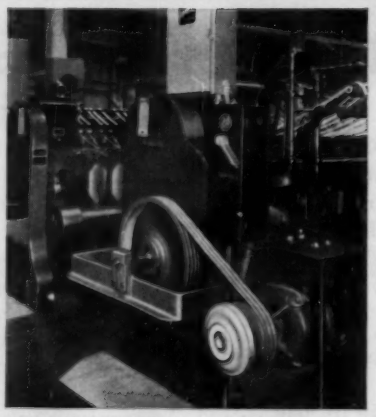
CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new methods. Look for his name under "Power Transmission Machinery" in the yellow pages of your phone directory. Or write us.



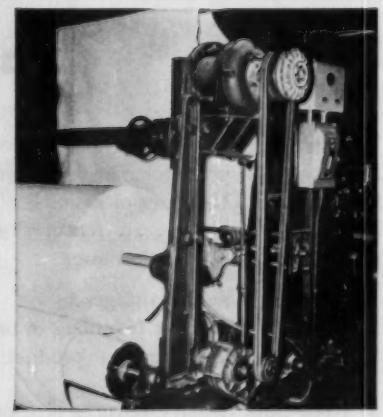
WOOL CARDS



LONG RAIL BEAM WARPERS



ROVING FRAMES



CORDUROY ROLLING HEADS

DODGE

of Mishawaka, Ind.

DODGE MANUFACTURING CORPORATION, 1400 Union Street, Mishawaka, Indiana

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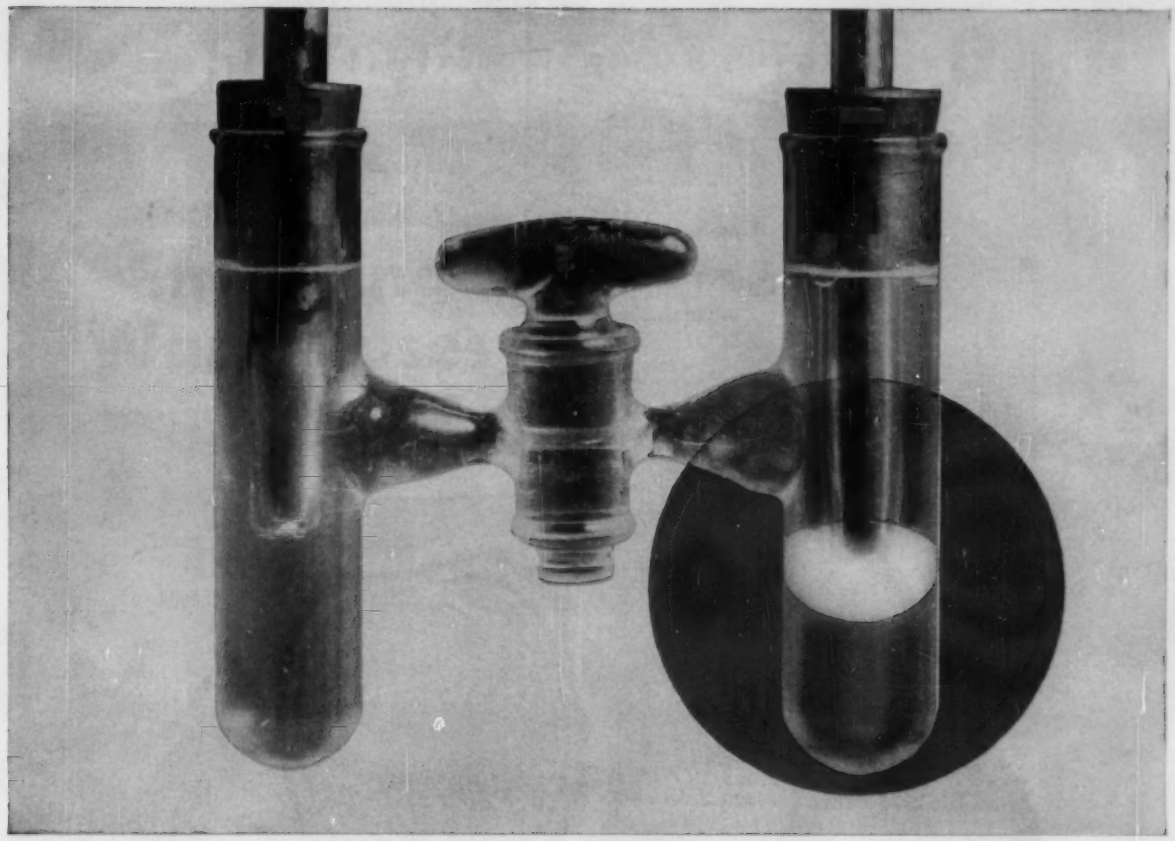

This is an unretouched photograph.

NEW! A CATIONIC STARCH

An entirely new concept is shown in the above electrophoresis cell. The cloudy mass about the cathode is National's CATO®—the first cationic starch for textiles.

CATO carries a cationic charge as an integral part of its polymeric structure. The result? A strong electrochemical affinity for negatively charged fibers—as proved by CATO's migration under applied potential to the cathode of the electrophoresis cell.

CATO shows unusual promise as a warp size for cotton, wool, Fiberglas, viscose and other synthetics. Preliminary tests strongly indicate less shedding, greater tensile strength and improved weaving. Moreover, CATO may well offer other striking advantages in printing and finishing.

Sound interesting? We'll be glad to supply trial quantities and have one of our textile specialists demonstrate in your plant.

National
STARCH PRODUCTS INC.

270 Madison Avenue, New York 16 • 3641 So. Washtenaw Avenue, Chicago 32 • 735 Battery Street, San Francisco 11

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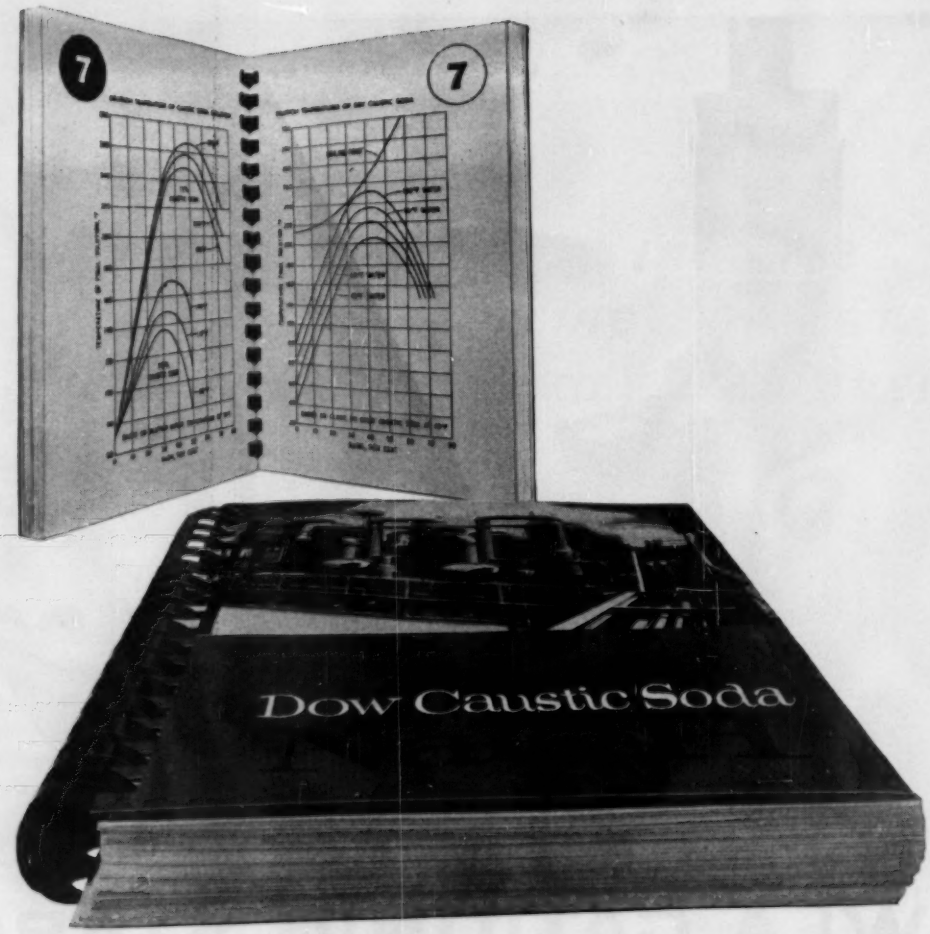

NEW 132-PAGE DOW CAUSTIC SODA HANDBOOK

This brand-new handbook is packed with information about caustic soda. It is organized and indexed for reference use. Contains specific data about the manufacture of caustic soda, chemical and physical properties, forms and grades, and methods of analysis—plus information about the economics of caustic soda usage and methods of handling and storage.

Seventeen different charts and tables cover such data as relative heat content, vapor pressure-temperature, dilution, and specific gravity vs. temperature of caustic soda solutions. Plan now to put this colorful, compact book (6¼" x 9½") in your reference files.

Yours for the asking. Send the coupon right away.

RETURN THIS COUPON FOR YOUR FREE COPY

THE DOW CHEMICAL COMPANY
Department AL 605E-1, Midland, Mich.

Please send my copy of
the new Dow Caustic Soda Handbook
at no obligation.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

YOU CAN DEPEND ON DOW

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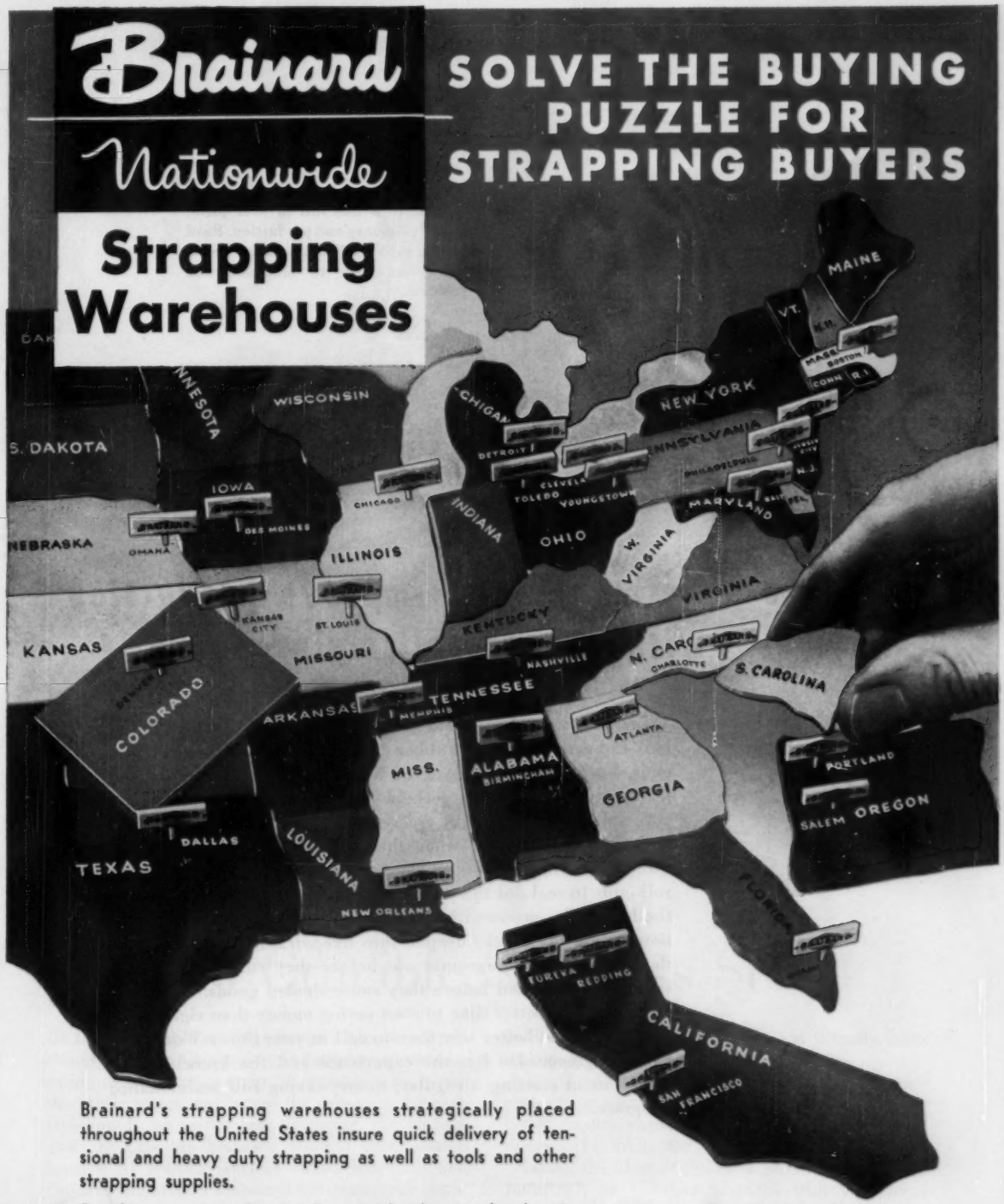
Brainard Nationwide Strapping Warehouses

SOLVE THE BUYING PUZZLE FOR STRAPPING BUYERS



Brainard's strapping warehouses strategically placed throughout the United States insure quick delivery of tensional and heavy duty strapping as well as tools and other strapping supplies.

For this reason, small to medium sized industries that buy in relatively small quantities have found that Brainard's service and delivery are topped only by the quality of their product.

808 Tuckaseege Rd., Charlotte, N. C.
565 Western Ave., N.W., Atlanta, Ga.

Brainard Steel Strapping

SHARONSTEEL

Brainard Steel Division, Sharon Steel Corporation
Griswold Street, Warren, Ohio

445

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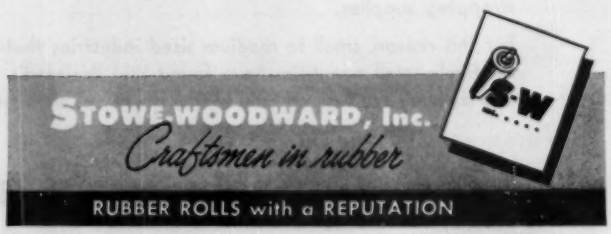
Rubber rolls like this in your plant, mean lost money and production. Read how regular roll maintenance procedures can help to eliminate this problem.

how to save money and improve production with proper roll maintenance

Cast a critical eye about your wet finishing operations and look in particular at the rubber covered rolls. If you see cracked ends, loose covers, checking or flat spots, chances are you are losing money, time, and perhaps even some of the goods which you run. Those rolls with cracked ends could have been saved had they been ground when the condition first showed itself. The loose coverings could have been prevented by covering the roll ends to seal out the water and chemicals which break down the bond. The covers which are checking should be ground right now before the checks deepen into irrepairable cracks, and the flat spots should be ground out before they ruin the roll. All should be corrected before they cause shaded goods.

There is no better time to start saving money than right now; and there is no better way than to call in your Stowe-Woodward Sales Engineer. He has the experience and the knowledge to help you in starting a regular, money-saving roll maintenance program.

Complete roll processing plants at:
NEWTON UPPER FALLS, MASS.
NEENAH, WISCONSIN
GRIFFIN, GEORGIA



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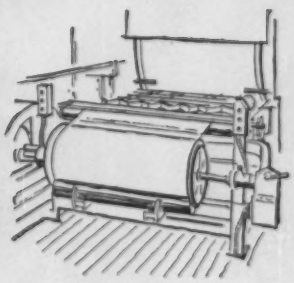
Maintenance becomes a small item



with Crucible Stainless Steel

On the new continuous high-temperature dyeing machines, rust-free Crucible Stainless prevents deterioration of the various types of pressure seals where the fabric enters and leaves the pressurized vessel. Dye liquids, no matter how damaging, can be handled by Crucible Stainless without deterioration because its polished surface resists corrosion and Crucible Stainless is renowned for quick, easy cleaning. Pin boards, bobbins and yarn carriers produce much better yarn when made of Crucible Stainless because it won't snag the yarn – it actually stays smooth forever.

It will pay you to find out more about how this cost-cutting material can make equipment turn out better quality yarn at lower cost. Do either of 2 things: (1) Write for Crucible's 32-page booklet, "Making the Most of Stainless Steels in the Textile Industry", or (2) Get in touch with your local Crucible representative. *Crucible Steel Company of America, Oliver Bldg., Mellon Sq., Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

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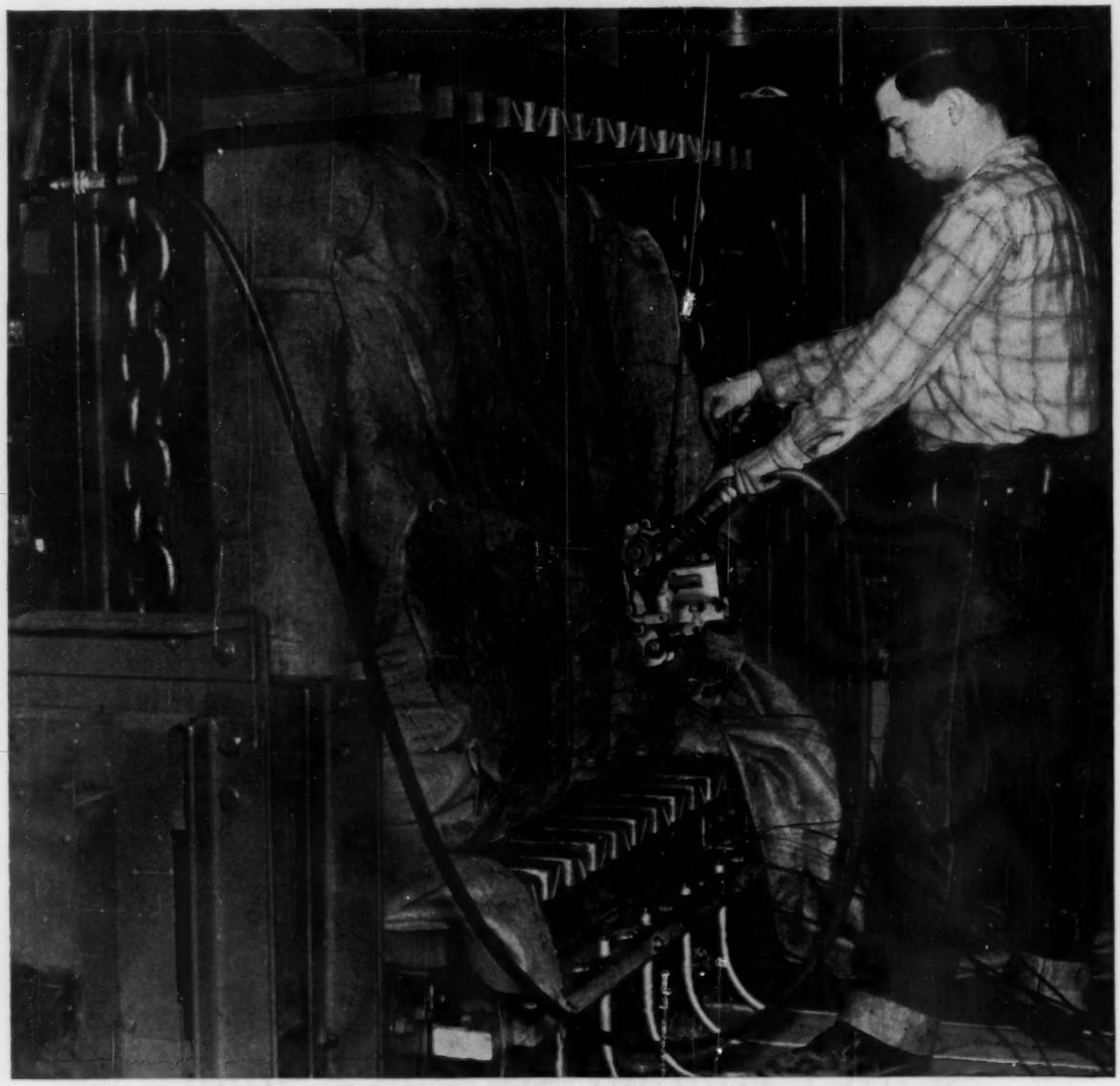

New Signode strapping tool speeds production of denser bales of fabric

Quick facts

- The new Signode AP is the only portable air-powered tool that tensions, seals, and cuts off strapping.
- All the strap in a coil is used.
- No wasted underlap or overlap.
- Smooth, clean cutoff at seal.

This man is using the new Signode AP tool. Air power quickly tightens each strap to the same pre-set tension, and then an easy motion of the handle seals the strap and cuts it off from the dispenser. All straps share the work, and a denser, neater bale results. Eliminated are the time-wasting operations of cutting strap to length and threading seals. There's no waste of strap. The suspended tool and floor-level strap feed are inexpensive details that help simplify the job.

Signode steel strapping and strapping tools, machines, and methods can help you strap better at less cost. Call the Signode man near you, or write:

SIGNODE STEEL STRAPPING CO.

2642 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Distributors and Subsidiaries World-Wide.

In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

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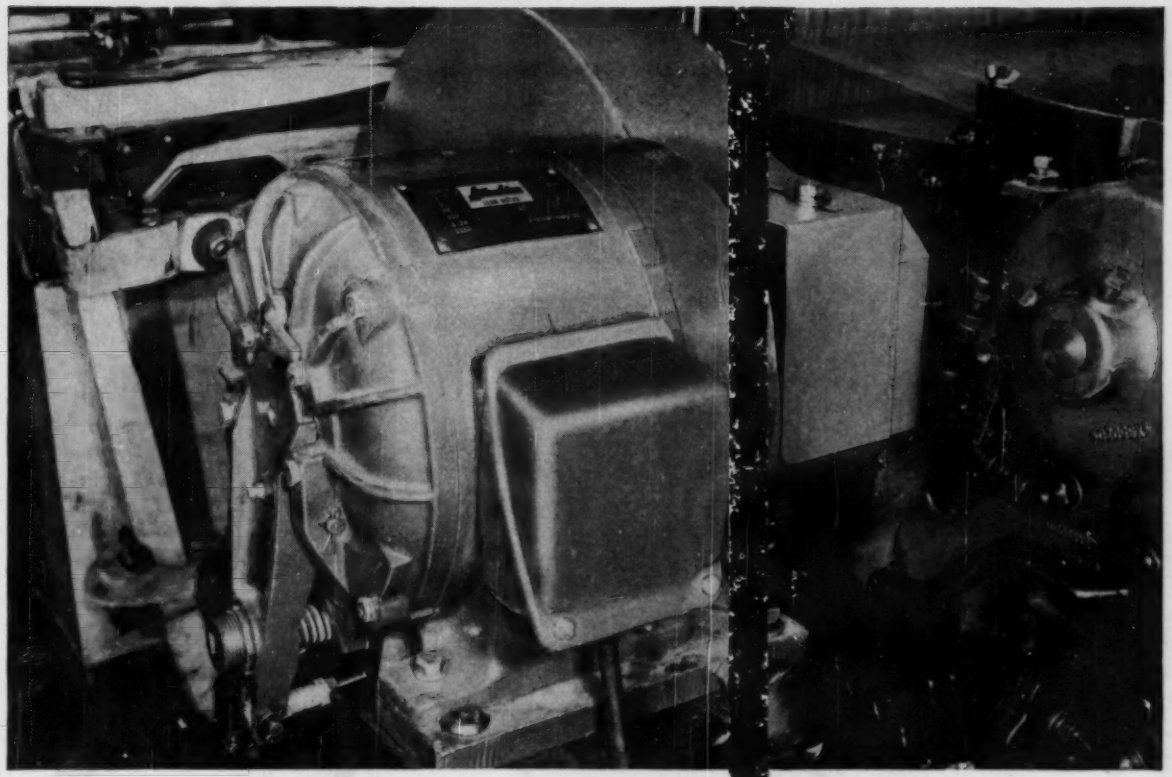

Just 45 minutes to tear down and reassemble Westinghouse clutch brake loom motor

The simple, rugged design of the new Westinghouse clutch brake motor gives extra performance and durability on Draper looms with *minimum* maintenance and down time. But . . . when inspection or maintenance is necessary . . . the Westinghouse motor can be taken apart and reassembled with *standard tools* in just 45 minutes (compared with 2½ to 3 hours for other motors . . . requiring *special* tools).

The Westinghouse clutch brake motor features revolving rotor inside stationary stator . . . a design that maintenance men are familiar with. Other Westinghouse motors for the textile industry include open and fan-cooled, lint-free motors; Life-Line® "A" loom motors and Gwaltney spinning frame motors.

For complete facts about dependable power for your plant call your Westinghouse sales engineer or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-22039

YOU CAN BE SURE...IF IT'S

Westinghouse

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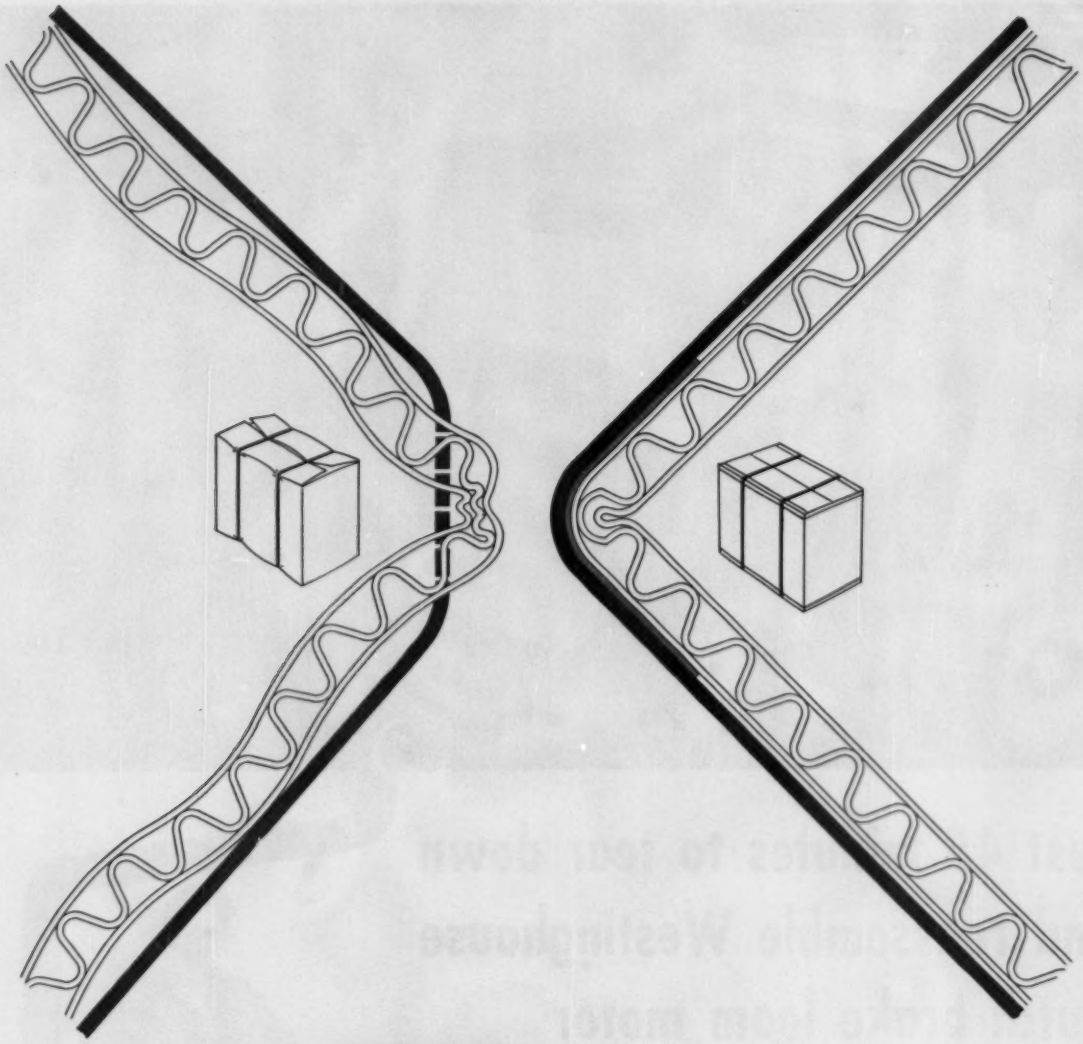
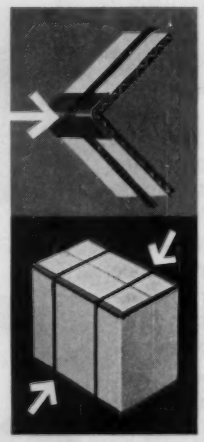


STRENGTH WHERE IT COUNTS



IN CCA-TexTite SHIPPERS

Understanding the needs of an industry results in packaging that creatively contributes to that industry. The new CCA-TexTite yarn and bulk goods shipper demonstrates this principle superbly.

CCA engineers have taken strength from areas where it was not needed and put it where it is most needed. The result: a unique structural feature—built-in reinforcing strips which completely protect your commodity from metal strap cuts and buckling at the point of contact.

This extra protection permits a lighter, lower-priced package which is also reinforced at the top and bottom of the vertical score lines. Right now CCA-TexTite is being used successfully by some of the country's major mills.

For an analysis of your packaging procedure in relation to your production methods, call CCA today.

CCA

CONTAINER CORPORATION OF AMERICA

Fernandina Beach, Florida Tel: 5551

OR

Box 2447, West Gastonia, North Carolina Tel: Valley 4-1731

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ANOTHER FIDELITY FIRST—*Simplified*

LENGTH CONTROL

with Yarn Tensioner and Compensator*

- Easily installed *in minutes*
- Permits use of new free-running pirns
- Maintains uniformity of stitch construction
- No wearing parts—no maintenance
- Completely self contained
- Tension adjustable in 1/10 gram increments
- Adaptable to *all* Seamless Knitting Machines
- Maintains stretch specifications

Fidelity has the answer . . . and another "first" in a distinguished line of advanced achievements in ***seamless*** knitting equipment.

Years in development . . . the result of exhaustive tests at mills throughout the country to produce a single, compact attachment which assures precise ***seamless*** stocking length with automatic yarn tensioner *and* compensator! The Fidelity Length Control Yarn Tensioner and Compensator offers a combination of design and performance features unequalled by any similar device on the market today.

*Patent Pending

ONLY FIDELITY GIVES YOU LENGTH CONTROL *PLUS* YARN TENSIONING *AND* COMPENSATING—at a fraction of the *cost* for other length control devices *alone!* Contact Fidelity now for early delivery.

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 11 BROADWAY, NEW YORK 4, N.Y.

SOUTHERN REPRESENTATIVE: C. S. BRANNOCK, P.O. BOX 763, MT. AIRY, NORTH CAROLINA

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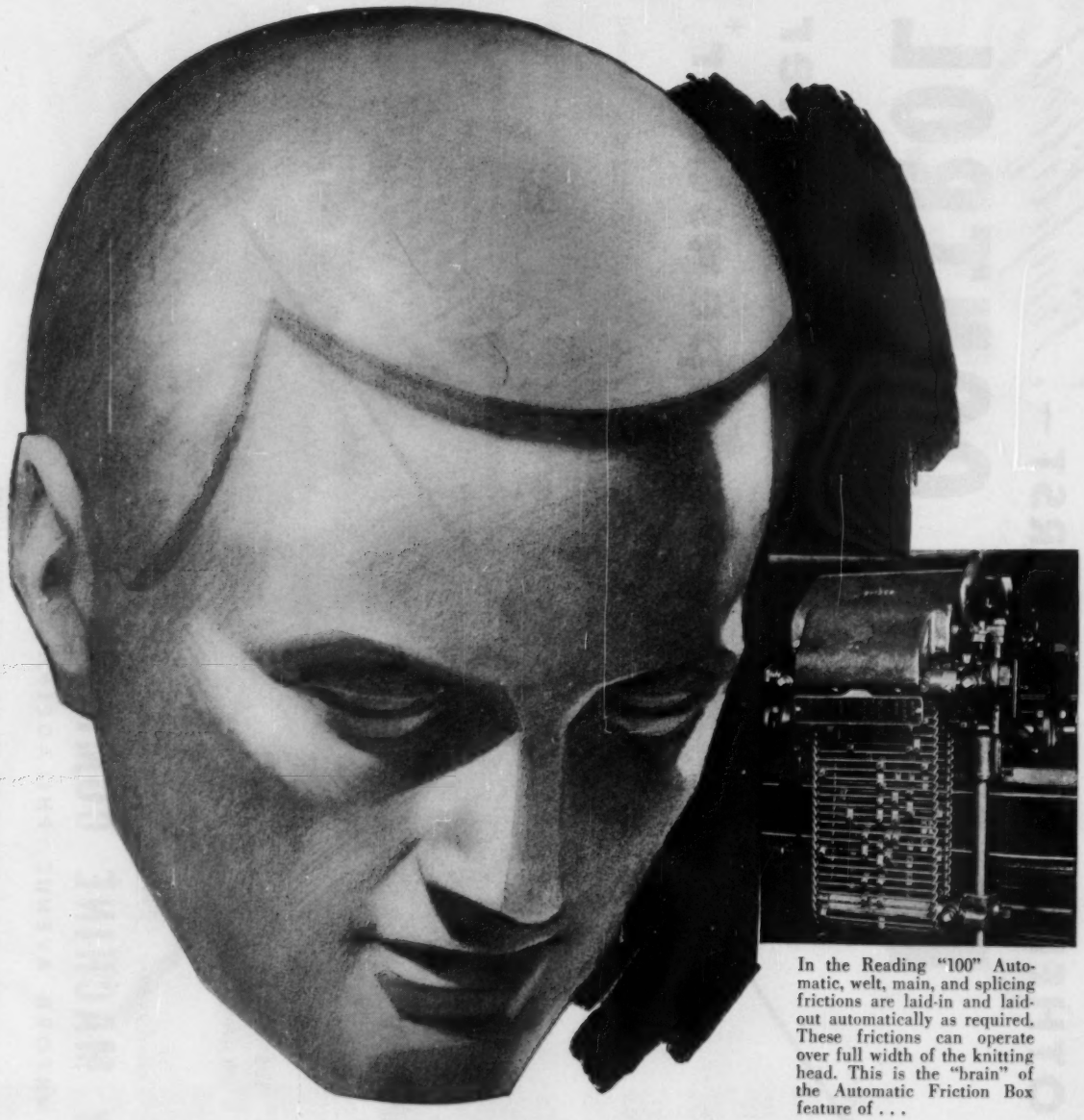

In the Reading "100" Automatic, welt, main, and splicing frictions are laid-in and laid-out automatically as required. These frictions can operate over full width of the knitting head. This is the "brain" of the Automatic Friction Box feature of . . .

the machine that almost thinks for itself

The mill-proved Reading "100" is just about the nearest thing to a completely automatic machine as is possible in full-fashioned knitting. Every motion is automatic — and closely controlled — to assure continuous, uninterrupted production of superior-quality stockings at lower per dozen costs, and to make it possible for an operator to earn more money. Let us give you the mill-proved Reading "100" story.

Builders of:
The "Reading" CK-A
Circular Knitting Machine
The "Reading" Tricot Machine
The "Reading 100"
Full-Fashioned Knitting Machine
The "Reading" Full-Fashioned
Outerwear Machine
The "Reading" Braiding Machine
Textile Spring-Beard Needles
Arrow Latch Needles

The "READING 100"
Full-Fashioned Knitting Machine

Knitting Machine Division
TEXTILE MACHINE WORKS, READING, PENNA.
Reconditioning Plant at Asheboro, N. C.
Builders of Textile Machinery Since 1900

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Sputnik—and Textiles

By all odds, the most dramatic and awesome event that has occurred in the world since the U. S. dropped the first atom bomb was Russia's launching of the "satellite" Sputnik. The A-Bomb had some effect on textiles. Sputnik will have more.

Early last month President Eisenhower on radio and television described steps being taken to coordinate and speed up defense research. But more important for the textile industry, he also publicly recognized the fact that the U. S. has a pressing long-range need to educate and develop more scientists and to foster more fundamental research—the kind that developed rayon and nylon, that cracked the atom, that discovered sulfa and penicillin, that launched Sputnik.

Since Sputnik is having tremendous political repercussions, you can depend on it that research and scientific education will be speeded up and broadened, whatever is required to do it.

Textiles Will Be Affected

The over-all effect on the textile industry will be that it will be pulled into more and more scientific and research activity. Almost overnight after President Eisenhower's speech, young men began to dream of and plan careers in science. It is quite possible that in the next several years the luster that attached to "engineer" during the present boom in capital expenditures will transfer to "scientist."

For several years mills have been increasing expenditures for research. The latest annual survey of business plans for capital spending, just released by the McGraw-Hill Economics Dept., shows that 25% of the mills answering the survey expect to spend more money on research next year than they spent this year, 72% expect to spend about the same amount, and only 5% expect to reduce research expenditures.

The work done for mills by the research department of one textile school has grown from almost nothing five years ago to about $500,000 this year. In another three years or so it is expected to reach $1,000,000.

The Industry Will Change

Such activity inevitably will lead to major changes in the textile industry. In the last several years it has led already to such advances as nonwoven and tufted fabrics, crush-proof finishes, new dyes and dyeing methods, fabulously high-speed carding, new spinning and weaving, etc.

With a new emphasis coming on science and research, the tempo of change is certain to speed up. In another quarter century, mills and the textile industry are likely to be hardly recognizable by today's standards.

As pointed out on this page last month, these changes in the industry and in the times are steadily demanding more of the men who run mills. When the full impact of the new emphasis on science is felt, changes are certain to come faster than ever and demands on the ability of textile men will be even sharper.

Since Sputnik was launched, we are dealing with tomorrow—not today. And the challenge now facing textile men is to shed their limitations of today and get ready for tomorrow.

A. M. Thomas

TOW...

will it make news in Dacron*/Wool Blends?

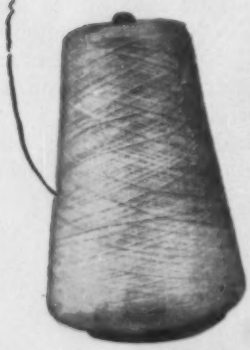
Wonderful and profitable things happened to suitings when spinners introduced yarns blended with synthetics — especially Dacron*. The next important advance may come through *modern* tow processing — on the Turbo Stapler. Here are reasons: On the Stapler, Tow can be given a staple diagram to match natural fibers, and can become an entirely *new* fiber.

Take Orlon* — on a Turbo Stapler it becomes fabulous High-Bulk Orlon that commands a premium price and has gained international recognition in less than three years.

The Turbo Stapler processes any man-made fiber delivered as tow. It heat-stretches, breaks and crimps the continuous, parallel fiber filaments to deliver an exceptionally even sliver. Denier can be altered — tensile strength increased — staple made long or short — hand can be silken-soft or wire-stiff. It is a compact, precision machine — easily controlled — quickly changed to process different fibers, without machine modification.

Modern tow processing may produce an entirely new suiting. We offer our facilities and complete cooperation to spinners who want to accept the challenge.

*Du Pont TM



TURBO
SINCE 1929

TURBO MACHINE COMPANY
LANSDALE, PA.

Makers of precision Heat and Steam Setting Machines, Crimpers and Tow Processing Equipment

Southern Sales Representatives: Parrott and Ballentine
501 So. Carolina National Bank Bldg., Greenville, S.C.

STRETCHING + BREAKING + CRIMPING + FINISHING = The TURBO STAPLER The TURBO FIBER SETTER

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BASIC RESEARCH . . .
More Practical Than You Think

This editorial, one of a special series on the importance of research to the American economy, deals with an aspect of our research program that may have serious consequences in future years — the lag in basic research.

An earlier editorial in this series noted: "The keen interest of U. S. business firms in scientific research points the way to a new kind of prosperity for our economy — a prosperity based on deliberate creativeness." As a result of the dramatic increase in industry's research expenditures, more new products will be introduced in the years 1957-1960 than in any previous four-year period.

A steady stream of new products and new processes means better values for consumers and lower costs for business. And thus it promises to sustain a high level of general prosperity that defies the old laws of boom and bust. **But, as we look further ahead, there is a danger that the stream of research discoveries may run dry because of our neglect of basic research.**

This danger was described by John Jay Hopkins, late founder and chairman of the General Dynamics Corporation: "Unless there is a revolutionary development in America of pure, not applied, science, there will come a day when there is no use in trading in your old car; because the new one is no better. The only difference between this year's television set and next year's will be the appearance of the cabinet! Scientific progress will be replaced by scientific stagnation."

What Basic Research Is

Basic (or pure) research has been characterized as the pursuit of knowledge for its own sake rather than to fulfill some practical objective. It is generally carried out in an environment which allows the investigator the freedom to follow the lead of his curiosity. The scientist in basic research, in the words of Glenn T. Seaborg of the University of California, is not concerned with "utilitarian goals, but a search for deeper understanding of the universe and the living and inorganic phenomena within it."

Impractical as basic research may seem in its initial purpose, it is an essential prerequisite to applied research and product development. A few examples will show how some of the greatest technical advances of recent years have come from basic research projects that had no immediate practical objective:

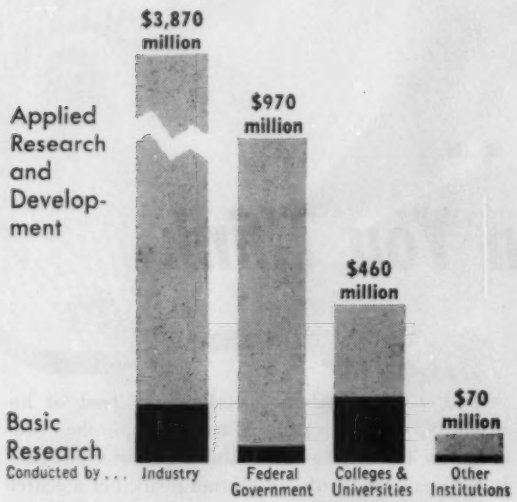
- **Radar** — an important military development of World War II with broadening commercial applications — was the outgrowth of a basic research project whose purpose was to obtain information about the height of the ionosphere, the layer of air that lies some 25 miles above the earth's surface.

- **Transistors** — the miniature devices which are already vital components of hearing aids, pocket radios and a wide variety of industrial equipment — were invented at Bell Laboratories (research subsidiary of the American Telegraph and Telephone Company) following university investigations into the electrical behavior of solids.

- **Neoprene** — a synthetic rubber — was developed by duPont with the help of basic information provided by Father Nieuwland of Notre Dame, who discovered he could control the polymerization (the linking together of molecules) of a certain class of organic compounds.

- **Nylon** — the first of the noncellulosic synthetic fibers that have revolutionized the textile industry — grew out of fundamental research by Dr. Wallace Carothers on long-chain polymers.

Only 8% of All Research and Development in the U. S. is Devoted to Basic Research



Data: National Science Foundation, "Funds for Basic Research in the United States, 1953"

Industry's Stake in Basic Research

Industry traditionally has relied upon colleges and universities and other nonprofit institutions for basic research; and the U. S. has long benefited from the greater emphasis placed on basic research in Europe. It is conventional to think that business cannot, and should not, do much about "ivory tower" projects which do not have immediate practical application.

However, there is not so much in this idea as is supposed. The examples above illustrate what Caryl Haskins, president of the Carnegie Institution, has called "the widespread paradox that the most important practical consequences are commonly the least sought after." Furthermore, it is certain that, without adequate basic research, industry's efforts to produce new and better products will become progressively more difficult. And our national defense, in an age of breathtaking military applications of science, will become increasingly precarious.

In the past, our economic growth came largely through expansion into new lands or through discovery and development of rich deposits of natural resources. Such opportunities are relatively limited today. The great opportunities now lie in discovering new materials and new properties of the materials we already have. **This is the job of basic research, and industry has a vital stake in it.**

The chart indicates the tiny share of research efforts in the U.S. that is devoted to basic research. **Only 4% of all research by industry, and only 8% of all research in the U.S., during the year 1953** (the latest for which information is available) **represented fundamental research to add to overall scientific knowledge.** Even in colleges and universities less than half the research performed is basic research. At least one Nobel Prize winner has expressed the belief that we need and should work toward a doubling of the proportion of our total research effort that is devoted to basic research as soon as possible.

What Business Can Do

Without anything like a staggering increase in the total cost of its research programs, industry could do much to expand our basic research effort. Companies with big research programs should, as a matter of successful survival, be devoting a share of the effort in their own laboratories to basic research. Significantly, companies that are already doing a notable job of basic research have also made an outstanding record of translating such research into new products for industry and the consumer.

Smaller companies may rightly regard the conduct of research projects with uncertain prospects of reward as a luxury. Some basic research, indeed, never results in any tangible payoff. But, with modest contributions, small companies can still have a part in the advance of basic research. They can join together with other companies on cooperative projects. They can support basic research through trade associations and technical societies. They can help research centers in universities and other nonprofit institutions. Arrangements are available in some instances whereby business firms can pay a fee to have access to work done by university researchers.

One way or another, it is up to private business firms to see that basic research moves forward. By doing so they will be laying the groundwork for the development of the new products and technology on which their growth, and the growth of the economy, depend.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nation-wide developments. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or parts of the text.

Donald C. McGraw
PRESIDENT

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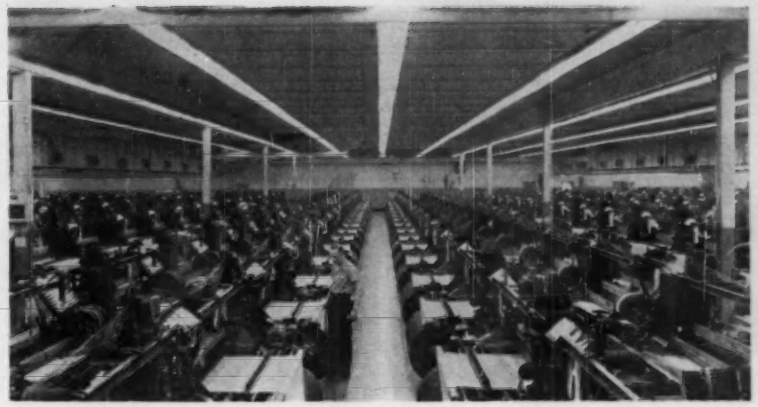


MODERN LIGHTING shown here is an example of the trend in textile lighting. The comfortable working condition supplies adequate illumination and helps make better yarn and fabric. High illumination is as important as new production machines.

How Modern Is Your PLANT LIGHTING?

- Fluorescent lighting has improved significantly since it was introduced into textile mills in 1938. Many mills have found that better mill operation and better lighting go hand in hand.

- This report on modern mill lighting gives you a chance to compare your own lighting with some of the best installations.

By **RICHARD B. PRESSLEY,** Associate Editor, TEXTILE WORLD

IN MANY DEPARTMENTS OF TEXTILE MANUFACTURING, jobs are difficult to see; for example, piecing ends under umbrella creels in spinning, drawing in ends in new warps, and inspecting cloth at the loom.

Expensive new machinery has been purchased by many mills so that jobs can be done more quickly, net better-quality products, and cost less.

Well-designed lighting is a big factor in this trend to increased production and lower spoilage. A good over-all lighting system is needed to supply adequate illumination for the many seeing tasks in a mill. In addition to better products, good general lighting contributes to a comfortable working environment.

Old Lamps Cause Worker Fatigue

In many mills with old lighting, supplementary lamps at critical positions of manufacture are furnished. Many of these lamps are of makeshift design and badly positioned and only complicate the seeing problem by direct and reflected glare from the poor supplementary lighting units.

Each time a worker moves from one area to another, his eyes are forced to adjust from the high brightness of the work to the darkness of the surrounding area. This adjustment occurs many times each day and may result in visual fatigue.

Good Lighting Has Three Features

In contrast with this older type of lighting, many relatively new mills and relighted old mills have:

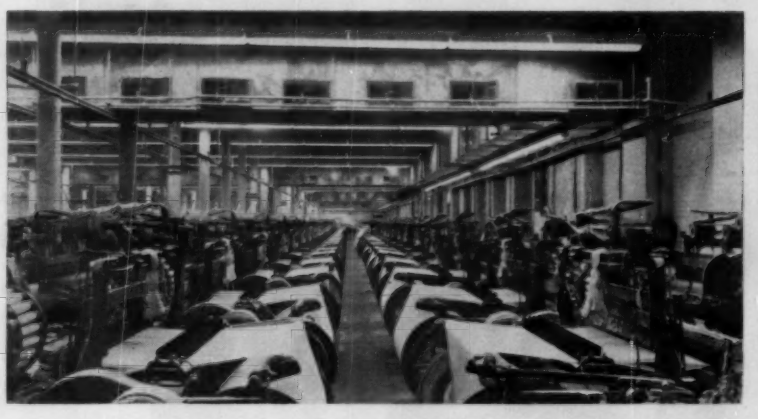
1. Good systems of general illumination
2. Well-designed supplementary lighting
3. Walls, ceilings, and other interior surfaces finished in light colors to reduce the high contrast between the visual task and the surrounding area

On the following pages are examples of modern lighting in important manufacturing departments of several mills.

Of course new lamps are being developed continuously. The lighting output of fluorescent tubes has been improved 30% in the last five years. One lamp manufacturer claims a new tube developed in 1956 has twice the output of its slimline tubes.

Most manufacturers consider fixtures with 5 to 15% and 20 to 30% upward light the best lighting today.

Important contributions to this report were made by M. B. Moore, Jr., and E. W. Michel, Westinghouse Electric Corp.; R. B. Chipman and Floyd Smith, General Electric Co.; and D. M. Woodside and D. O. Engelbretsen, Benjamin Electric Mfg. Co.



NEW LIGHTING in an old weave room is maintained at 65 ft.-cs. The Westinghouse 8-ft. high-output rapid-start fixtures are 14 ft. from the floor and spaced 14 ft. apart.

Check Your Lamps by These Five Basic Lamp Designs

• A fluorescent lamp installation is not necessarily a modern lamp installation. Of the five basic designs now being used, only two are modern and efficient.

MODERN MILLS HAVE GONE WHOLLY TO FLUORESCENT LAMPS in important manufacturing areas because fluorescent lamps produce over four times as much light as filament lamps for the same amount of power consumed and they generate considerably less heat.

Lower power consumption is a major factor in favor of fluorescent lamps when a mill is adding air conditioning.

The growth of fluorescent lighting in textile mills has been rapid since 1938, when it was introduced, after being developed in 1936. This growth is a result of the inherent efficiency of the lamps. In a fluorescent tube, there are 65 lumens per watt power; and in a filament lamp, there are 15 lumens per watt.

Tubes Generate Little Heat

In addition, there's more brightness in a fluorescent tube because the light is spread over the entire length of the tube.

The fluorescent lamp produces light with considerably less heat than a filament lamp. In a 40-w. fluorescent tube, 20.5% of the consumed Btus. takes the form of heat and radiated heat is 26.5. In a 100-w. filament lamp-light output is 10% and radiated heat is 72%.

Less than half of the heat from a fluorescent tube is radiant energy, but about three-fourths of the heat of a filament lamp is radiant energy. Therefore the radiant heat generated by fluorescent lamps is approximately one-fifth that produced by filament lamps.

A fluorescent lighting installation is consequently cooler than an incandescent installation.

The other components of the total heat are conductive heat and convective heat, and they do not contribute much to the sensation of heat from a lighting installation.

In a lighting installation where air conditioning is used, the total heat is considered. The total heat is, of course, the straight-line relationship between the watt-hour and the 3.414 Btus. of heat each watt-hour produces.

Fluorescent lamps have been made in five distinct types. By checking your present lamps with the following five types listed in the order of their development, you can tell how modern your own installation is:

1. The preheat fixture. This 4-ft. lamp has starters in addition to ballast to operate the tube. The ballast preheats the electrodes in the tube and enables a starting voltage of 200 v. to operate the lamp. The starters have to be replaced frequently, and maintenance cost is high.

2. Two 4-ft. fixtures in tandem in a single channel. This lamp is a preheat design and is used in many textile mills. It gives higher foot-candles than any previous design.

3. The instant-start fixture. This 4-ft. lamp operates from a starting voltage of 450 v. There is no preheating of the elements, and 450 v. are necessary to strike the arc between the electrodes and the tube from a cold start. This fixture is substantially more expensive than the preheat fixture.

4. Slimline. This lamp was introduced about 1950 and is still used more in textile mills than any other lamp. Since it is basically an instant-

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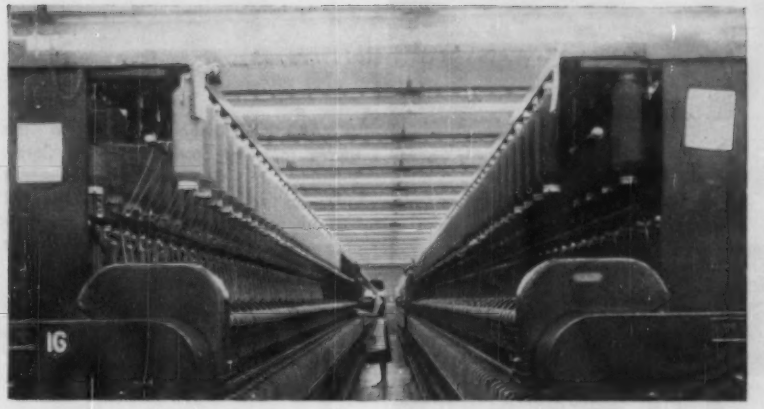


HIGH FOOT-CANDLES of 160 are maintained in this woolen and worsted spinning room with 800 units 8 ft. long; units are 10% upward-component fluorescent. Benjamin Electric fixtures and GE lamps are used. The 160 ft.-cs. overcome the critical seeing task caused by umbrella creels.

Choose Your New Fixtures From These Modern Lamps

• Only two modern types of fluorescent fixtures and lamps are being installed in textile mills at present to replace older fluorescent luminaires. Here are details to show which lamp is best for your plant.

RECENT IMPROVEMENTS IN LAMPS AND LAMP FIXTURES have made it worth while for many mills to install new lighting systems. In general, these mills are following this pattern:

1. Changing from two-lamp 4-ft. fixtures (usually the preheat type) to two-lamp 8-ft. fixtures, either slimline or rapid start.
2. Raising the fixtures to get them as high off the floor as possible.
3. Using 5 to 15% upward-component fixtures.

The 8-ft. slimline lamp uses 450 v. to strike the arc in the tubes, and it has a single-pin contact. It uses 74 w. and produces 5,000 lumens.

What Is the Rapid-Start Tube?

The 8-ft. high-output rapid-start lamps (105 w., 6,800 lumens) consume more wattage than 8-ft. slimline lamps, but this extra wattage enables them to produce more lumens. However, they aren't more efficient in lumens per watt than slimline lamps.

In some mills, fixtures are already mounted as high as possible; and in most instances, these mills are installing 8-ft. slimline fixtures. These lamps are mounted 8 to 12 ft. above the floor for best performance.

But 8-ft. rapid-start lamps should be mounted 14 to 30 ft. above the floor for best results. Therefore these lamps are used where there is high mounting space. The results are a high foot-candle level with lower brightness.

What Lamp Should You Use?

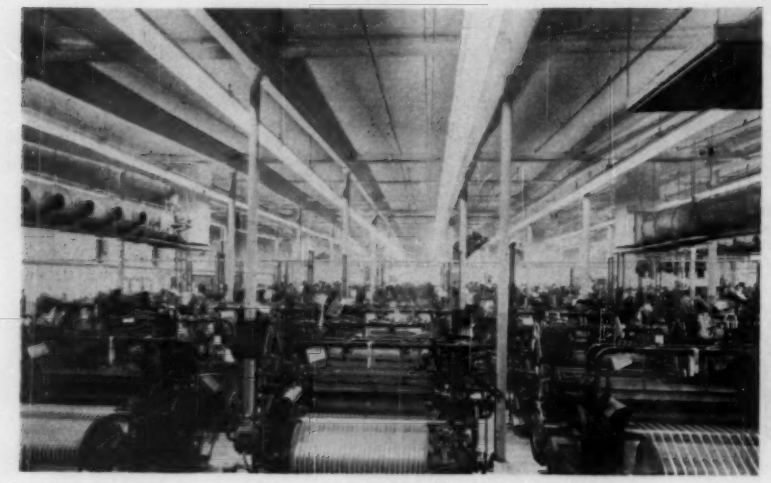
In most textile mills, mounting height is limited to 10 or 12 ft. from the floor. Consequently, rapid-start lamp installations are often limited to new plants with high ceilings.

In most existing mills, new lighting installations of 8-ft. slimline are best. These fixtures can be mounted at the maximum spacing to height, and they give more-even distribution of light than rapid-start fixtures similarly mounted.

In contrast, rapid-start lamps to give the same level of foot-candles would have to be spaced farther apart if they cannot be raised higher. And since the rapid-start 8-ft. fixture is farther away from the next fixture, there is a build-up of light directly under the fixture and a lower level of light between fixtures.

Departments	Ft.-cs.
Soaking and fugitive tinting	30
Condition or setting twist	30
Winding and twisting	50
Rewinding and coning	50
Quilling and slashing	50
Warping (silk or cotton system)	70
Drawing in by hand	150
Weaving (light goods)	50
Weaving (medium goods)	70
Weaving (dark goods)	150

FOOT-CANDLES recommended by one lamp manufacturer for silk- and rayon-fabric manufacture range from a low of 30 in soaking to 150 in weaving dark goods and drawing in. This foot-candleage is much higher than that used by mills cited as examples in this article.



UPWARD-COMPONENT LAMPS in the weave room at Stonecutter Mills Corp., Spindale, N. C., replaced fluorescent lamps of an earlier design. These GE high-output lamps have 10% upward component and give evenly distributed light throughout the weave room.

Consider Upward Component For Even Light Distribution

• The newest trend in lighting is to upward component. To date, textile mills are installing 5 to 15% openings. Here are data to show how these fixtures improve lighting.

GOOD LIGHTING DOES NOT HAVE ANY DARK AREAS. Older textile plants with lighting modernization programs are installing fixtures with 5 to 15% and 20 to 30% upward component. These apertures create a chimney effect through the reflector and help eliminate high brightness below the fixtures and dark areas above the fixtures.

Where the overhead ceiling area and equipment above the fixture line are not painted, fixtures with 5 to 15% upward component of light are used.

But if the equipment above the fixture line is painted, a white paint is used because of its high reflecting characteristics and 20 to 30% upward-component fixtures are used.

There is no value in sending 20 to 30% of the light upward if equipment above the fixture line is not painted. The light would be absorbed by the equipment and the dark ceiling; together they would have reflecting values of only 10%.

However, if the ceiling and equipment above the fixture line are painted white, they reflect approximately 80% of the light directed upward. This reflected light results in a substantial reduction in the contrast in the high brightness below the fixtures and the usual darkness above the fixture.

In fixtures with no upward opening, 5 to 15% of the light is normally reflected from the top of the fixtures into the tubes and fixtures and is absorbed by them. This light is not reflected downward to the working area and has no value.

Waste Light Is Utilized

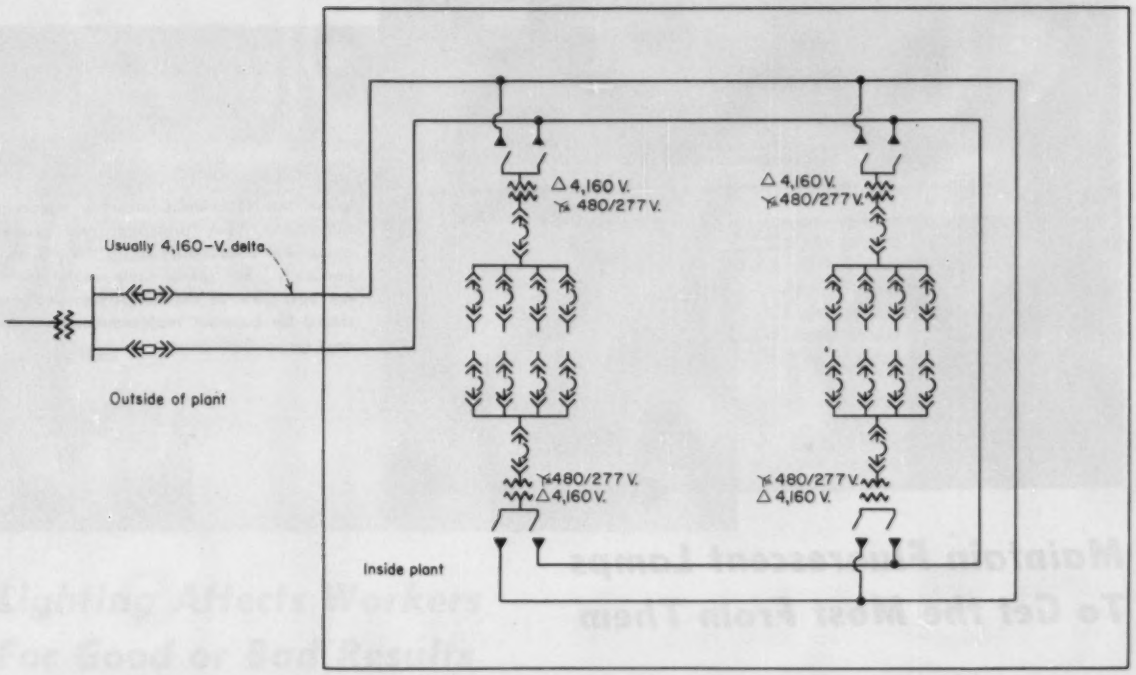
By cutting 5 to 15% apertures in the top of the reflector and letting this light go upward, the light that was being wasted previously is utilized.

There is also another important reason for using 5 to 15% or 20 to 30% apertures in textile mills: the apertures set up convection currents of air; these currents draw lint through the apertures; and the lint does not collect under the reflector and tubes.

Therefore these physical qualities generate less contrast, give a greater degree of eye comfort, and remove the dungeon-like appearance that is present with older equipment.

Departments	Ft.-cs.	Departments	Ft.-cs.
Opening, mixing, and picking	30	Inspection (rapidly moving denim)	300
Carding and drawing	30	Automatic warp tying	150
Slubbing, roving, spinning and spooling	50	Drawing in by hand	300
Warping	50	Weaving (light goods)	50
Beaming and slashing (gray goods)	50	Weaving (medium goods)	70
Beaming and slashing (denim)	150	Weaving (dark goods)	150
Inspection (hand turning gray goods)	70		

LAMP MANUFACTURERS can't agree on the best foot-candle lighting level for production departments of textile plants. This table of lighting levels for cotton gives the highest foot-candles of three manufacturers' recommendations.



480/277-V. SYSTEM shown here is a primary selective load-center system with two single-throw interlocked primary interrupting switches. This lighting system is an ideal one for textile-finishing departments or plants or other mill departments where only a few motors would have to be rewound to 480 v.

Look at 277-V. Lighting For Your New Plant

• Initial power-distribution cost can be reduced greatly with 277-v. lighting; and besides, you will have better lighting. Here's how you gain—

THE 480/277-V.-WYE COMBINED LIGHTING AND POWER SYSTEMS should be considered for new plants. With the increasing use of fluorescent fixtures and the trend toward substations located near the center of loads, the 480/277-v. system offers many advantages to new textile mills.

This system is being designed at present into many multistory office buildings, schools and other institutional buildings, and industrial plants.

More than $1.5-million was saved in initial cost by installing 277-v. lighting in New York City's relatively new 20-story Coliseum. And future additions to the distribution system will increase the savings.

Another recent 277-v. system installation is at the valve-manufacturing plant of A.C.F. Industries, Stafford, Tex., where a 480/277-v., three-phase, four-wire, wye system is used.

Voltage Isn't Limited to 120 V.

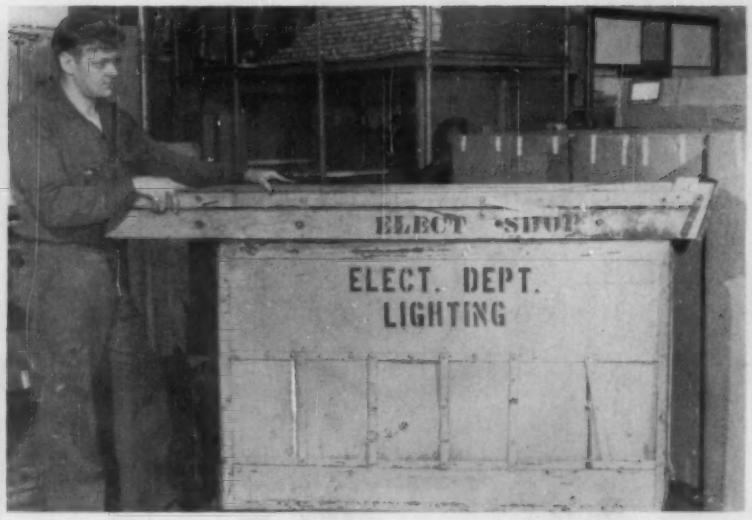
For most efficient operation, incandescent lamps' distribution of power for lighting loads was 120 v. Initial fluorescent lamps also used 120 v. But since the fluorescent lamp has a ballast in series with it, the 120-v. limitation no longer applies.

Voltage at starting fluorescent lamps is always above 120 v. and is supplied by a transformer built into the ballast. Therefore higher-voltage lighting circuits of 277 v. reduce the cost of a power system, particularly in the elimination of dry-type transformers throughout the plant except for receptacle outlets. The basic 480/277-v. system is identical to the 120/208-v. system that has been used generally in the past except that the single phase is 277 v. and the three-phase system is 480 v.

The lighting fixtures cost the same as 120-v. fixtures. But 440-v. motors have to be used instead of the usual 550-v. motors. There is no difference in the cost of the motors or the motor controls.

In addition, secondary feeders distribute 480 v. and require one size larger wire than for 550 v.

The system is not being used to replace older lighting systems in textile mills because it is impractical to replace or rewind present motors and other equipment to 480 v. For this reason, 277-v. systems are being confined to new plants where many economies are possible.



LAMP MAINTENANCE includes replacing burned-out tubes promptly, and proper equipment is necessary to do this job economically. For group lamp replacement, the best 20% of the lamps removed are stored for burn-out replacements until the next group replacement.

Maintain Fluorescent Lamps To Get the Most From Them

• Whether you install new lighting or keep your old system, you must maintain the lamps to get the light you're paying for. Here are several ways you can do it—

GOOD-QUALITY LIGHTING WILL NOT REMAIN ADEQUATE unless it is maintained correctly. Correct maintenance includes four distinct phases.

1. Area maintenance. This phase of over-all maintenance includes repainting an area. Repainting without any other changes can improve lighting 25 to 50%. Mill areas should be painted a durable mill white with an egg-shell surface.

Dirt accumulates on ceilings and walls in varying degrees depending on the atmospheric condition. Therefore periodic cleaning is as important as repainting.

2. Fixture maintenance. Luminaires should be cleaned, inspected, and repaired frequently. Cleaning schedules should be established to keep a given area from dropping more than 15 to 20% from accumulated dirt; periodic foot-candle readings will determine the frequency of cleaning on this basis.

When cleaning is being done, cleaning employees should inspect the fixtures for electrical and mechanical defects and report defects so that they can be repaired.

When work is done on a fixture, the reflector should be wiped with a dry cloth. This cleaning is helpful but does not replace periodic cleaning by washing. Washing reclaims 10 to 15% more light than dry wiping.

3. Lamp maintenance. Replacing burned-out lamps promptly is the most important phase of lamp maintenance. If lamp burn-outs are neglected, foot-candle values in an area may drop from 10 to 25% within a short time.

A good program to prevent excessive outages is:

a. Patrol buildings each day and replace burned-out lamps.

b. Have all plant supervisors report outages as they occur.

c. Have night watchmen and company guards report outages.

d. Replace flashing fluorescent lamps promptly.

e. Be sure all new lamps installed are of the proper rating for the fixture.

f. Replace badly blackened or discolored lamps. These lamps are near the end of their lives, and replacement saves a special trip soon.

4. Electrical-system maintenance. Voltage variations within 6% of the primary of a fluorescent ballast are permissible. Variations in excess of 6% affect lamp operation.

Voltage for incandescent lamps should be maintained as close as possible to the lamp rating. Line voltage above the rating shortens lamp life but increases lamp output. Line voltage below the rating extends lamp life but reduces lamp output 3% for each 1% drop in voltage.

Consider Group Lamp Replacement

Group replacement of lamps is being used in many industries and is recommended by most major lamp producers. But this system has not been widely accepted by textile mills.

Several types of group-replacement programs are being used. The program used most in textile mills is to replace all lamps at the same time when they have completed 80% of their life expectancy. Since the life expectancy of a fluorescent tube is 7,500 hrs., replacement is at 6,000 hrs.

All the remaining lamps are discarded except the best 20%. The 20% of lamps are selected from those not darkened; the extent of darkening is the best indication of future life expectancy. The saved 20% of lamps are sent to the supply room and are

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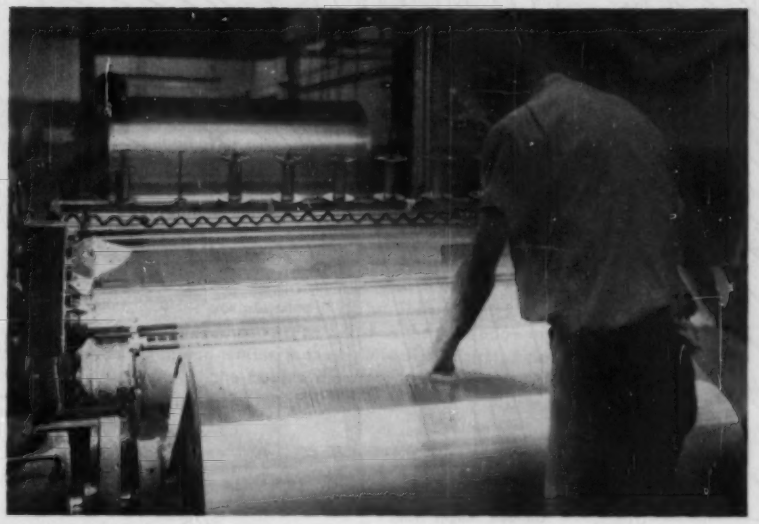

SPECIAL LAMPS may have to be added to aid workers in detecting yarn or fabric defects. This GE 450-w. Par-38 lamp at Klopman Mills, Inc., Asheboro, N. C., is mounted at the slasher so that the light falls at a grazing angle.

Lighting Affects Workers For Good or Bad Results

• In the final analysis, lighting is good or bad to the extent that it helps or hinders workers doing their jobs. Here are some points on lighting and its effect on workers that should be considered.

LIGHTING IS AN IMPORTANT AGENT OF PRODUCTION. Workers operating machines are guided by their eyes; and with good lighting, eyes can perform faster and with less energy in guiding a worker. Good lighting cuts down a worker's mistakes.

There is a direct relationship between the number of foot-candles and quality of lighting to a worker's efficiency. Efficiency in this instance means how fast the worker does the job and how well he does it.

In low light levels, the eye takes longer to adapt to fine details such as piecing ends or other tedious textile jobs. For example, to pick out fine details at 10 ft-cs. takes 36 secs.; and to pick out the same detail at 100 ft-cs. takes only 30 secs.

Poor Lighting Causes Mistakes

Over a period of several hours under poor lighting, a worker is fatigued unnecessarily. The results are often inflammation of the eye and headaches. When this condition exists, the worker does not do his work well.

The number of foot-candles alone is not a true indication of good lighting. Of course the number of foot-candles available is an important part of good lighting, but it is not the only factor necessary.

The factors that make good lighting are: (1) foot-candles; (2) no lighting contrast, such as between light and dark areas; (3) fixtures mounted as high as possible to eliminate the brightness of the lighting source; and (4) light-colored and

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Departments	Ft.-cs.	Departments	Ft.-cs.
Opening, blending, and picking	30	Warping (medium goods)	70
Carding, combing, and gilling	70	Warping (dark goods)	150
Drawing and twisting (light goods)	50	Wet finishing	50
Drawing and twisting (medium goods)	70	Dry finishing (napping and conditioning)	70
Drawing and twisting (dark goods)	150	Dry finishing (pressing and folding)	70
Winding and spinning (light goods)	50	Dry finishing (shearing)	150
Winding and spinning (medium goods)	70	Dry finishing (inspecting and perching)	500
Winding and spinning (dark goods)	150	Folding	70
Weaving (light goods)	70	Burling	150
Weaving (medium goods)	150	Sewing	300
Weaving (dark goods)	300	Dyeing and grading	150
Warping (light goods)	50		

FOOT-CANDLES recommended by one lamp maker for wool manufacture range from 30 in the opening room to 300 in a weave room weaving dark goods. The nearest foot-candle reading of any mill cited in this article is 160 for wool spinning with umbrella creels in a North Carolina mill.

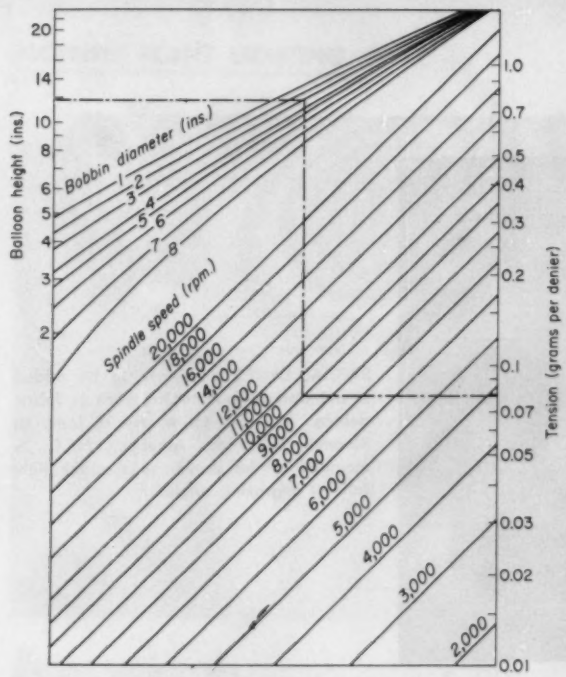


Fig. 1a

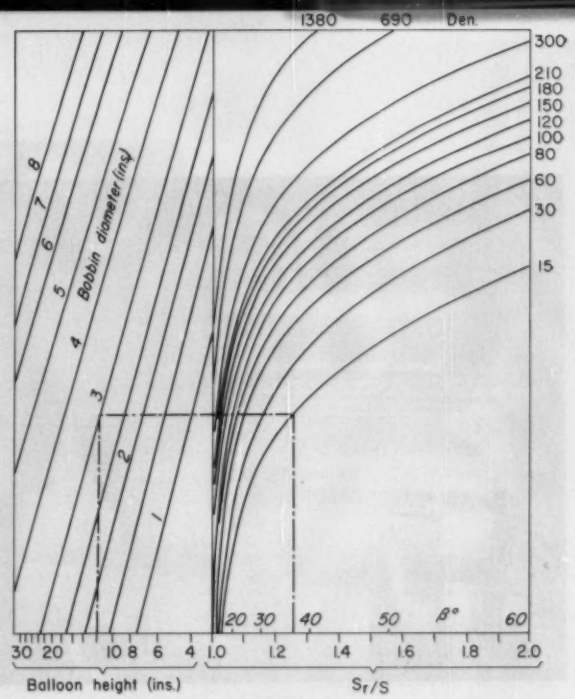


Fig. 1b

NOMOGRAMS to determine yarn tension in the balloon show tension without air resistance at the left (1a) and the influence of air resistance at the right (1b). To find the yarn tension on 15-den. yarn running at a spindle speed of 10,000 rpm. on a bobbin with a diameter of 3 ins. with a 12-in. balloon, read the thread tension on the left diagram. Reading across the 12-in. balloon height to the 3-in. bobbin diameter, drop to the 10,000-rpm. line and read 0.079 grams per denier. From the diagram on the right, read up the 12-in. balloon-height line to the 3-in. bobbin-diameter line, across to the 15-den. line, annd down to 1.26 on the Sr/S line. The yarn tension is 0.79 x 1.26 x 15, or 1.49 grams.

Sr/S = ratio of yarn tension with air resistance to the yarn tension without resistance.

Determine YARN TENSIONS With These Nomograms

- Determining yarn tensions before yarns are twisted helps in selecting the correct machines and makes sure that excessive yarn tensions will be avoided.
- Nomograms explained here can be used to find expected yarn tensions on uptwisters, bell twisters, ring twisters, and two-for-one twisters.

By FRANZ FOURNE

RECENT DEVELOPMENTS IN TWISTING have increased the importance of knowing more about yarn tensions that occur during twisting. These developments include higher spindle speeds, heavier bobbins for longer knot-free yarn lengths, and new types of man-made fibers.

This knowledge could be gained from yarn-tension measurements. Such information, however, is often required before the yarn is processed so that the proper machines can be selected or so that excessive yarn tensions can be avoided.

From the forces occurring at the yarn balloon, such as yarn tension, air resistance, and centrifugal force, a system of equations can be obtained. These equations can be transformed to give formulas for the determination of yarn tension. This method has proved satisfactory for uptwisters, two-for-one twisters, and bell twisters.

For ring twisters, a detailed calculation shows that the yarn tension in the balloon is very small compared with the yarn tension between the runner and the bobbin. Unfortunately this tension, which is really the decisive yarn tension in such machines, is difficult to determine by a measuring device.

How Uptwister Data Are Found

Where uptwisters are used, the yarn runs off a revolving bobbin through the balloon into the thread guide. The acting forces, centrifugal force and air resistance, result in a certain yarn tension that can be determined from two diagrams.

CONTINUED ON PAGE 202

TREAD TENSION on bell twisters can be determined on this chart. Suppose the balloon height is 12 ins., the bobbin diameter is 3 ins., the coefficient of friction between the yarn and bell edge is 0.45, and the ratio of the 2 9/16-in. bobbin diameter to the bell diameter is 0.85. The ratio of yarn tension to the balloon tension from the diagram is found by reading across the 12-in.-balloon-height line to the 3-in.-bobbin-diameter line, up to the 0.45 coefficient-of-friction line, across to the 0.85 ratio line, and down to 3.2. This figure is multiplied by the yarn tension found in Fig. 1b; so the tension is 3.2 x 1.49 grams, or 4.8 grams.

The coefficient of friction on the bell edge is 0.45 for viscose, 0.48 for nylon, 0.4 for acetate, and 0.29 for Teflon.

Pt/Sr = the ratio of yarn tension between the bell edge and the bobbin to the thread tension in the balloon with air resistance.

d/D = the ratio of the bobbin diameter to the ring or bell diameter.

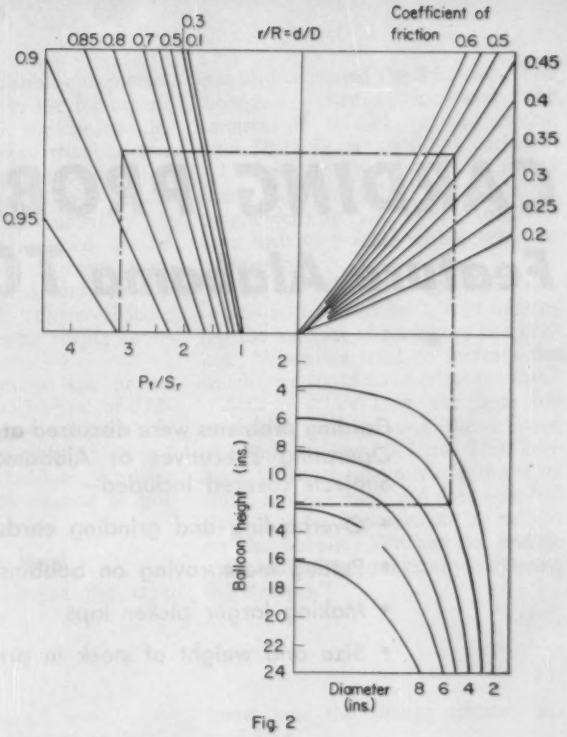


Fig. 2

YARN TENSION between the traveler and the bobbin can be determined with the nomograms below. Suppose the traveler weight is 39 mg., the spindle speed is 9,000 rpm., and the ring diameter is 4 in. Read up the 39 mg.-traveler-weight line on the chart at the left (3a) to the 9,000: rpm. line, across to the 4-in.-ring-diameter line, and up to the centrifugal-force line to 180 grams.

If the ratio of the bobbin diameter to the ring diameter is 0.4 with a bobbin diameter of 1 5/8 ins. and the coefficient of friction between the traveler and the ring is 0.1, find the yarn tension on the chart at the right (3b). Start at the 0.4 d/D line, move right to the 0.1 line, go down to the C 1.8 line, and across to the left to 37 grams in the C = 10, 100, 1,000 column. The yarn tension is 37 grams.

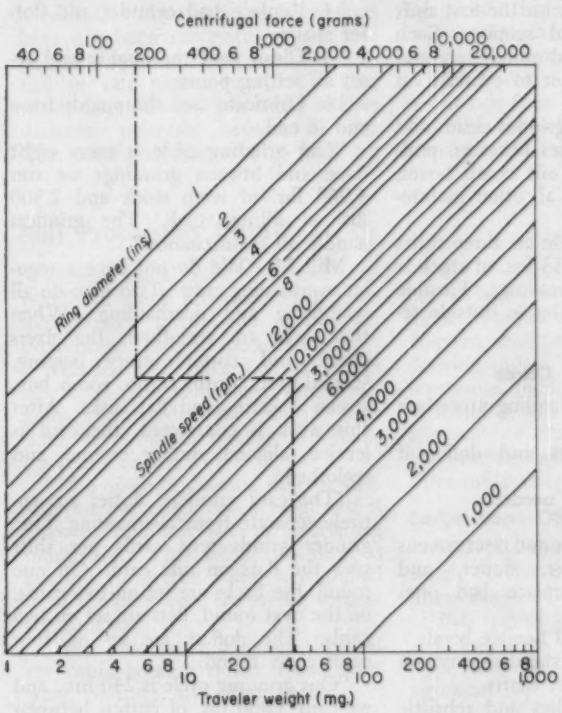


Fig. 3a

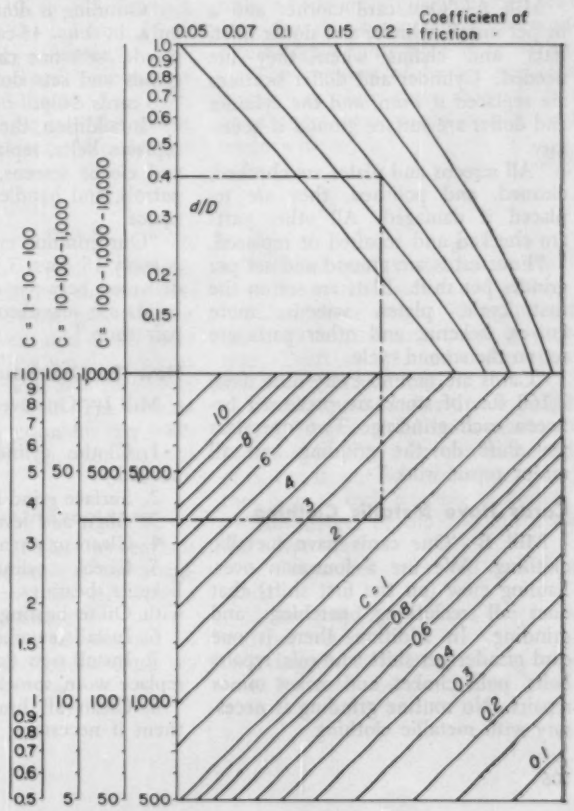


Fig. 3b

CARDING PROBLEMS
Feature Alabama TOE Meeting

Carding problems were discussed at the fall meeting of the Alabama Textile Operating Executives at Alabama Polytechnic Institute, Auburn, Ala. Subjects covered included—

- **Overhauling and grinding cards**
- **Putting more roving on bobbins**
- **Making larger picker laps**
- **Size and weight of stock in process**

Overhauling Cards—

Fifteen mills reported on procedures for overhauling cards and the duties of card grinders. While the procedures follow the same general pattern for mills using fillet clothing, the operation varies somewhat for mills that have cards equipped with metallic clothing.

Mill A—"One card clother and a helper install cylinder and doffer fillet, flats, and chains when they are needed. Cylinder and doffer bearings are replaced if worn, and the cylinder and doffer are surface ground if necessary.

"All screens and plates are checked, cleaned, and polished; they are replaced if damaged. All other parts are checked and repaired or replaced.

"Four cards are ground and set per grinder per shift. Flats are set on the first cycle; plates, screens, mote knives, lickerin, and other parts are set on the second cycle.

"Cards are ground every nine days; 2,160 lbs. of stock are processed between each grinding. Two operators per shift do the grinding and all minor repair work."

Cards Have Metallic Clothing

Mill B—"Our cards have metallic clothing. We use a four-man overhauling crew (on the first shift) that does all reclothing, patching, and grinding. In addition, there is one card grinder per shift who oils, repairs belts, pulls chokes, and makes minor repairs. No routine grinding is necessary with metallic clothing.

"Reworked flexible bends are installed with each new set of flats. We do not rework the bends ourselves."

Mill C—"We do not have an overhauling crew or do scheduled overhauling. Our overhaulers reclothe cards and put on new flats, chains, bearings, and other parts.

"Grinding is done on the first shift only in our 45-card section. Each grinder sets one card completely and grinds and sets doffer to cylinder on two cards daily.

"In addition, the grinder cleans and replaces belts, replaces lickerins, pulls and cleans screens, oils comb boxes, patrols, and handles all other maintenance.

"Our grinding cycle on three shifts is every 15 days; 3,553 lbs. of stock is delivered between grindings. Flexible bends are reworked by an outside repair shop."

How To Overhaul Cards

Mill I—"Our overhauling procedure is:

1. Clothe cylinder and doffer if needed
2. Surface grind if needed
3. Align and level
4. Clean or replace and reset screens
5. Check cylinder, doffer, and lickerin bearings; replace bad ones with Oilite bearings
6. Install reworked flexible bends
7. Install new flats and chains and replace worn sprocket shafts
8. Clean all brushes and rebristle them if necessary
9. Straighten back and front plates and polish out rough places
10. Overhaul coiler head and replace worn parts and gears
11. Check coiler and calender trumpets
12. Install reworked feed rolls
13. Replace bad lickerins
14. Replace bad cylinder and doffer shafts
15. Clean card thoroughly and reset all setting points
16. Lubricate card thoroughly from end to end

"Our grinding cycle is every eight days; and btween grindings we run 4,960 lbs. of warp stock and 2,300 lbs. of filling stock. The grinders handle all maintenance."

Mill M—"We do not have a regular overhauling crew. Two men do all reclothing and overhauling. When the cards are reclothed, the fixers check and correct every bearing, journal gear, brush, comb, comb box, screen lickerin, and flat disks. After this work is completed, the card is leveled, aligned, surface ground, and reclothed.

"The card grinders' duties are entirely separate from overhauling. One grinder grinds four cards per shift plus the flats on one card. On one round, the backs are set on two cards; on the next round, flats are set on two cards. The doffers are set on four cards every round.

"Our grinding cycle is 240 hrs., and we card 3,000 lbs. of cotton between grindings."

Larger Roving Packages—

Four mills reported that more roving can be put on the bobbin by increasing the number of wraps around the flyer pressers.

Two mills said that attempts to increase package weight were unsuccessful because of problems involving tension. All the mills making larger bobbins satisfactorily reported no trouble with tension or uniformity.

Mill B—"We put an extra wrap on our flyer pressers to increase the net weight of roving on the bobbin. We now get 64 oz. of 60-hk. roving on a 12x6½ bobbin, compared with 52 oz. formerly put on the bobbin. For 90-hk. roving, the comparison is 62 oz. against 52 oz. formerly.

"Every effort is made to control tension and humidity. We have noticed no difference in uniformity since the change."

Mill C—"We have on order a set of 10x5 and 12x6 double-eye presser fingers that we plan to use for experimental purposes. In the meanwhile, we find that one more wrap on our present presser fingers increases the bobbin weight from 40 to 48 oz. There is no change in uniformity."

Mill E—"Roving wrapped around the presser foot was increased from two to three full turns, and the tension was increased. These changes permitted 14.8% more roving to be put on the bobbin.

"With two wraps on the presser foot, we formerly put 50.5 oz. of 0.60- and 0.72-hk. roving on a 12x6½ bobbin. Four wraps now permit us to put 58 oz. on the same bobbin. We have had no trouble with tension or uniformity."

Larger Flyers Are Used

Mill H—"We changed the taper gear and increased the flyer size. The taper-gear change increased the amount of 0.70-hk. carded roving from 50 to 53 oz. on 12x6½ packages.

"When the flyer size was increased from 12x6 to 12x6½, the bobbin weight went up from 44 to 50 oz. We have had no trouble with tension or uniformity."

Mill M—"We have not been able to find a successful method of increasing the amount of roving on the bobbin. When we tried to increase the weight, we could not control tension."

Mill N—"We have not been too successful in increasing the amount of roving on our 10x5 and 12x6 bobbins. Changes were made in the taper angle, lays per inch, and flyer tips; but there was no improvement in weight on the bobbin. We had no trouble with tension or uniformity following the changes."

Pneumatic Lap Controls—

Twelve mills reported on the use of pneumatic lap controls. All but one reported good results, and most of them were able to increase card-tender work assignments.

Mill A—"We have had pneumatic lap controls on our pickers for 10 years, and they are very satisfactory. We increased the weight of our 14.5-oz. laps from 43 to 57 lbs. and the length from 47 to 63 yds. The change eliminated one card tender."

Mill C—"Pneumatic rack tensions have not been successful at our mill because we do not have humidity control in our picker room. On dry, windy days, the lap gets fluffy and its diameter increases beyond 21 ins. This condition forces us to back up on the yards per lap.

"We increased air pressure in the cylinders to 70 lbs. but still could not increase the length of the lap. At the present time, we are experimenting with increased weight on the stack rolls. This extra weight, used in conjunction with the rack tensions, has permitted an increase in lap weight from 49 to 58 lbs."

Mill E—"By adding more weight to the calender rolls, we have increased lap weight from 49 to 59½ lbs. net and the length of the lap from 56 to 68 yds. Uniformity is better."

Mill F—"We increased the weight of our laps from 48 lbs. to 57 lbs. net. The lap controls are not the newer tension-control devices. We do not know how the change affected our card jobs."

Lap Weight Is Increased 18%

Mill K—"Pneumatic lap controls without ball-bearing calender rolls increased our lap weight 18%. The control, in conjunction with 18x42 coiler heads, enabled us to increase card work assignments 33%."

Mill N—"Our 31 pickers are equipped with pneumatic lap controls, which are a great improvement over the shoe-type control. We increased lap weights from 56 to 70 lbs.

"The number of lay-ins per card tender per shift were reduced; but no changes were made in the card tender's basic job."

Mill Processing Data—

Eleven mills gave the size and weight of stock processed from picking through roving and reasons for establishing certain specifications.

Mill E—"We make a 14-oz. picker lap, a 61-grain card sliver, and a 66-grain finisher-drawing sliver. Our 0.60- to 1.00-hk. rovings are made on 12x6½ frames.

"The 66-grain drawing sliver is suitable for our range and roving, and it gives us evenness without sacrificing production. This weight of sliver is less apt to stretch when it is pulled from the cans over the lifting rolls at the slubbers.

"We produce a 61-grain sliver at the cards because slower speed saves gears, bearings, and other parts."

Mill F—"Stock at each process is run as heavy as efficient drafting permits. We run a 14-oz. picker lap, a 56-grain card sliver, and a 57-grain drawing sliver. These weights give us maximum production and minimum variation at each process. The weights also balance production for our 0.80-hk. roving made on conventional three-roll frames."

Large Laps Offer Advantages

Mill N—"Our 16½-oz. picker laps weigh 70 lbs. and have a 6% maximum range of variation. Advantages of this size of lap are:

1. Increased picker production
2. Improved card-tender work assignment.
3. Better quality and less waste
4. Fewer lap haulers and rackers

"Card sliver weighs 70 grains and has a 30% maximum range of variation. Draft is 103, and doffer speed is slower than standard.

"Breaker and finisher drawing sliver weighs 70 grains and has a maximum variation of 30%. Seventeen pounds of sliver is put in 12-in. spring-bottom cans at each drawing process.

"Advantages of the 70-grain drawing sliver are:

1. Fewer deliveries and less floor space
2. Increased production per frame and per tender
3. Improved variation
4. Reduced cost per pound."

FELT PLANT of F. C. Huyck & Sons, Aliceville, Ala., has 208,000 sq. ft. of floor space in a modern one-story brick-and-block air-conditioned building.

A Picture Tour of Huyck's NEW FELT MILL

• Papermaker's felts and blankets for compressive-shrinkage machines are made at F. C. Huyck & Sons' new mill at Aliceville, Ala. It is a fully integrated plant producing finished fabrics of wool, nylon and Dacron.

F. C. Huyck & Sons is in full operation at its new felt plant in Alabama. The 208,000-sq.-ft. building is located in a grove of pine and oak trees seven miles south of Aliceville, near the Tombigbee River.

The Aliceville plant is Huyck's first Southern installation. Other Huyck plants are located at Rensselaer, N. Y., Peterborough, N. H., and Arnprior, Ont. Plant Manager Charles LaDow explains why this particular location was chosen for the new mill:

"Many new paper mills are being built in the South," Mr. LaDow said, "and paper mills are our customers. At present, 35% of this country's paper production is in the South, and there are many more mills being built or in the planning stage for this section.

"If the present trend continues, Alabama will be the center of the paper industry. There are also many textile finishing plants nearby that use our compressive-shrinkage blankets.

"In addition to a central location near our customers, we also wanted to locate near a civic-minded town with a good social climate and reliable workers. An abundant supply of soft water was also essential.

"Aliceville seemed to have all the desired qualities. After two years here, we are more convinced than ever that our choice of location was a good one."

Designed by Lawrence Whitten, Birmingham, and erected by Daniel Construction Co. of Alabama, the mill swung into full production less than two years after ground was broken at the new site. While the plant was being built and the machinery installed, local people were trained for the various jobs.

With the exception of five supervisors, the entire work force of 255 persons is from Aliceville and other nearby towns and communities.

The one-story windowless building has exterior walls of brick with an air space between the outer wall and the concrete-block inner wall. Concrete floors have a special granite finish to make them smooth and dustless. Steel columns and girders support the built-up tar and gravel roof.

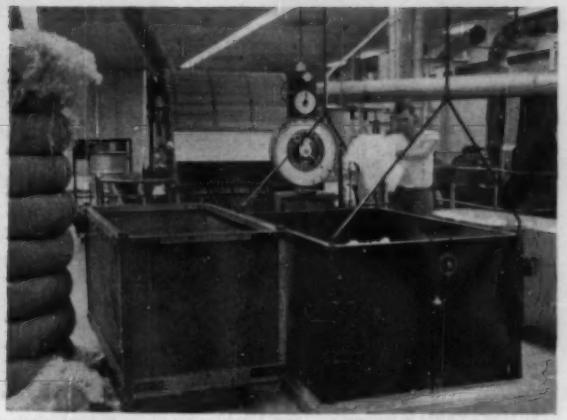
Material for the ceiling is corrugated, perforated, aluminum with a 2-in. layer of glass-fiber insulation. This hung ceiling does not catch dust and provides an air space to improve air-conditioning efficiency as well as to conceal pipes, ducts, conduits, and structural members. Noise reduction, neat appearance, and infrequent maintenance painting are additional features of the ceiling.

The air-changing system uses filtered air drawn through refrigerated water. Miles of copper tubing and hundreds of valves and gauges are used in the centralized air-changing system.

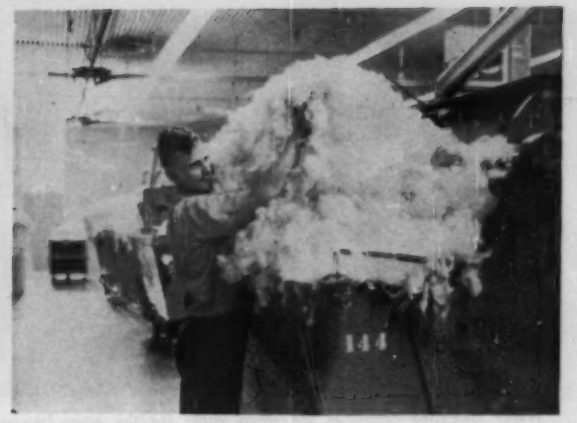
Some nylon, Dacron, and other fibers are used; but 80% of the material that goes into Huyck's papermaker's felts is wool. The wool is bought from all the principal wool-producing countries and is delivered to the F. C. Huyck & Sons' mill at Rensselaer, N. Y., to be sorted and scoured. Wool for the Aliceville mill is shipped South by motor truck.

Papermaker's felts are custom made to the customer's specifications. The type, size, and speed of the paper machine, the stock used, the water temperature, and the kind and finish of paper to be made must be known before a felt can be design-engineered and woven. The exact amount of raw stock of the correct blend for a certain felt is started in the picker room and is kept separate from other stock through all the processes.

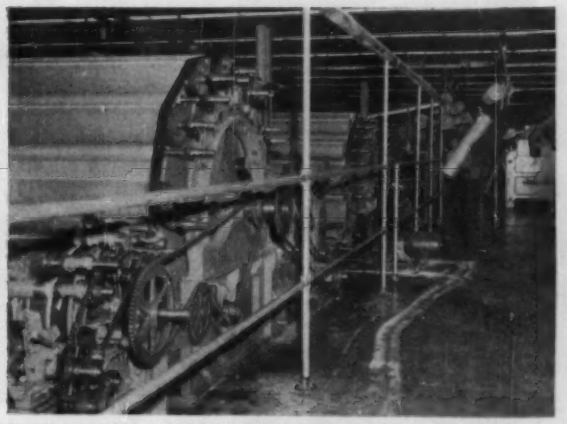
CARDING



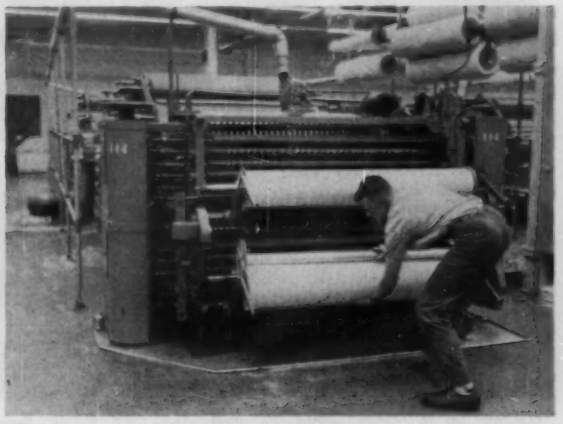
STOCK dropped into the hopper is weighed and released automatically onto a conveyor that takes it to the blender-pickers.



THE STOCK is placed in the card hoppers and is kept separate through all the following operations.



CARDS convert the raw stock into roving. Each of the cards' three units—breaker, intermediate, and finisher—has individual motor drives.



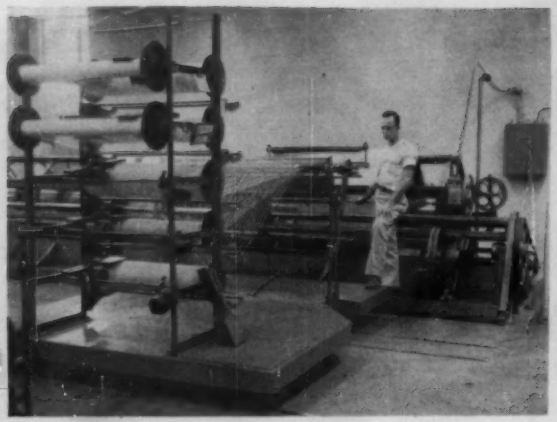
SPOOLS of roving contain 30 ends and weigh 25 lbs. Wool is carried by overhead conveyor to the spinning frames; worsted sliver is taken to gill boxes.

SPINNING

WOOLEN YARN is spun on these Whitin frames of 150 spindles each. Spools of roving are split; 15 ends of the roving go to each side of the frame.

WARP YARN is taken from the bobbins in the creel and placed on spools, 40 ends per spool. All the stock is identified by color-coding.

WEAVING



WARP DRESSER combines the warp yarns for the loom beams. No slashing or sizing operation is needed for the yarn.

FILLING YARN is wound on loom bobbins by these Abbott winders. The mill also has cop winders that prepare some of the filling.

LOOMS up to 600-in. width are used. This C&K 520-in. loom weaves either flat or endless felts at a speed of 31 ppm.

BOBBINS are placed in the shuttle by hand. For some weights of felts, a bobbin holds only enough filling yarn for a few picks.

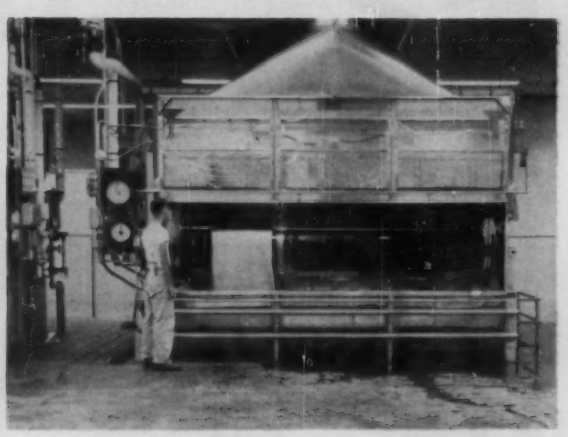
INSPECTING AND JOINING

JOINING the flat felts to make them endless requires skill. The finished joint is invisible, and it is as strong as other parts of the felt.

INSPECTOR carefully scans every square inch of the felts on a back-lighted frame. All slugs, knots, and other imperfections are repaired.

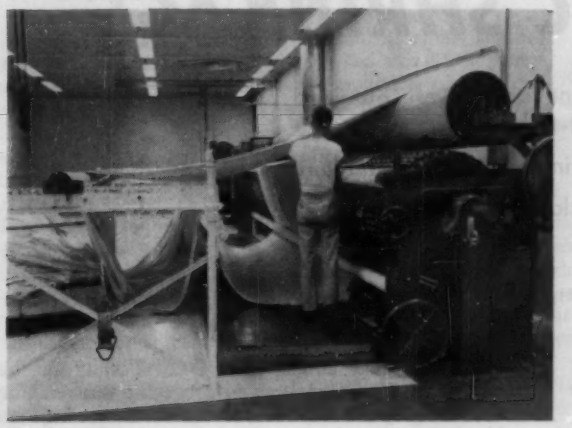
FULLING AND WASHING

FULLING MACHINES shrink the felts to size. The felt is removed frequently and spread on the floor for measuring and checking.

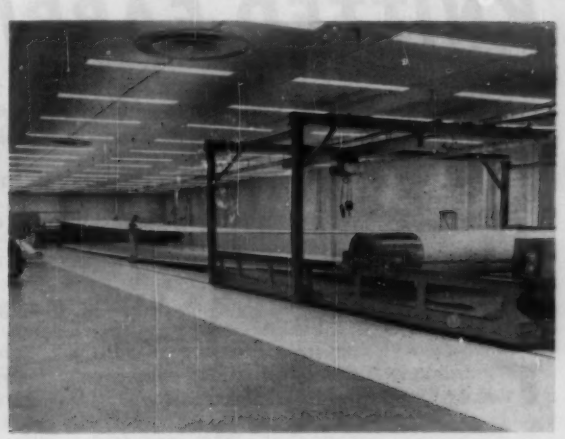


WASHERS remove impurities from the felts. The felts are then placed in centrifugal extractors that spin out all excess water.

FINISHING AND PACKING



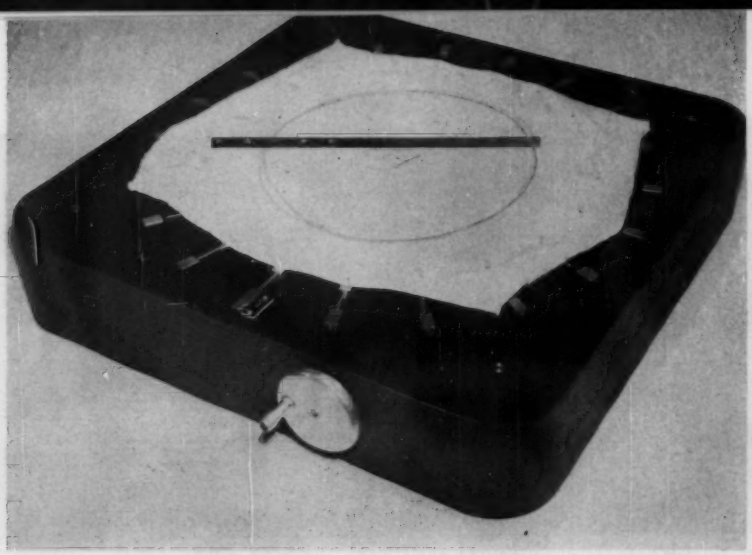
NAPPERS, equipped with vegetable teasels, give some felts a napped finish. Some felts are sheared; others are singed with a controlled gas flame.



DRYING MACHINE dries the felt at its correct size. The tail roll in the foreground is movable, while the steam-heated roll is stationary.

FINAL INSPECTION is given to all the felts to make certain they are within tolerances and that they have the proper finish.

FELTS are carefully packaged. Some are rolled in tubes, some are baled, and others are packed in special boxes.



KNITTED FABRIC is laundered, dried, and mounted on the pins of the knit-shrinkage gauge. The pins are moved outward and the restored-shrinkage measurements are taken.

A New Method To Measure KNITTED-FABRIC SHRINKAGE

- Restorability data on 68 different fabrics were obtained by measuring the fabrics under tension on a knit-shrinkage gauge
- Results of the tests can be used to improve knitting and finishing operations
- Fabrics can be grouped into six classes with different shrinkage standards for various end uses

By **CAMERON A. BAKER,** Manager, Textile Research Dept., U. S. Testing Co., Inc.

UNTIL RECENTLY, KNITTED-FABRIC SHRINKAGE HAS NOT BEEN EASY TO MEASURE SATISFACTORILY. However, a knit-shrinkage gauge developed at U. S. Testing Co. has enabled us to apply a method to gauge the recoverability of knitted goods under tension after laundering and tumble drying.

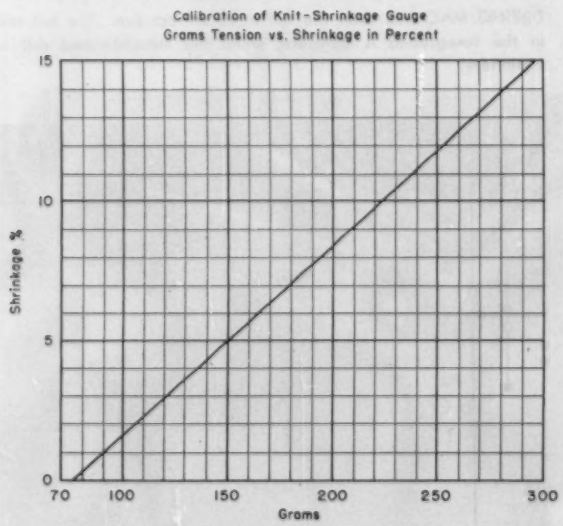


FIG 1. CALIBRATION GRAPH shows the relationship between the restored-shrinkage data and the force in grams required to overcome the spring tension on the pins.

A recent study with the gauge of 68 fabrics of different constructions showed that 44% of the fabrics failed to restore their shape under nominal tension. The other fabrics showed varying degrees of restorability.

Fabrics Can Be Classified

These fabrics can be classified into groups to enable the shrinkage characteristics to be selected for any knitted garment. For instance, some garments, such as dresses or suits, may require a Class 1 rating. For other garments, such as men's underwear, fabric with a Class 4 rating might be satisfactory.

Many knitters and finishers are aware that too much shrinkage in finishing can cause complaints of stretching or sagging in finished goods. So the solution to shrinkage problems is not simply one of reduced yardages or less yield.

Some fabrics made from thermoplastic yarns can be stabilized by heat-setting operations. These fabrics have increased competition in the mechanical or chemical stabilized fabrics made from other fibers.

These stabilized fabrics cannot be evaluated on a shrinkage basis unless some assurance can be given that the low-shrinkage qualities will not create a stretchable fabric that is unstable in use.

Except for fabrics stabilized for loss or gain, the fabric with optimum shrinkage characteristics is a fabric that shows some shrinkage in laundering but will recover to near-normal dimensions under light tension.

Such a fabric will regain its fitting qualities after laundering without special attention and will not exhibit unwanted stretch characteristics during wear. One such fabric we tested, which was rated by the manufacturer as of good performance, showed a gross shrinkage of 9.5% in the wales direction and 9.5% in the courses direction. This shrinkage was restored to within 4% in either direction under the condition of the new test.

The high degree of distortion in circular knitted fabrics makes the measurement of these fabrics difficult. A common drawback to all mechanical approaches of measurement has been the elimination of frictional forces in the frame on which the fabrics are to be restored.

Gauge Has Expanding Pins

The knit-fabric shrinkage gauge, which overcomes these mechanical difficulties, has a circle of mounting pins set in a table so that the circle can be expanded from 11 ins. to 14 ins. Each pin is connected to an individual calibrated spring through which tension is exerted on the sample.

The springs are anchored to guides that travel in slots on the table surface. These guides are moved in and out by a slotted disk. A hand wheel operates the drive.

A sample is marked for a 10-in. measuring circle, and a second circle 12 ins. in diameter is marked around the first circle to show the location of the 20 mounting pins. The sample is laundered and mounted on the pins when it is dry. The pins are then driven to their extreme outward position. The restored shrinkage measurements are then taken in the length and width directions of the sample separately.

Each mounting pin opposes another pin so that the stretching of the sample in that area takes place between two calibrated springs that share the load. This action is comparable to stretching an elastic band by hooking a spring scale to each end of the band.

Similar action takes place at the same time around the perimeter of the sample; so the forces act on one another. Low shrinkage in one direction of a specimen permits free movement of the pins to follow the guides until tension in the cross direction begins to make an influence.

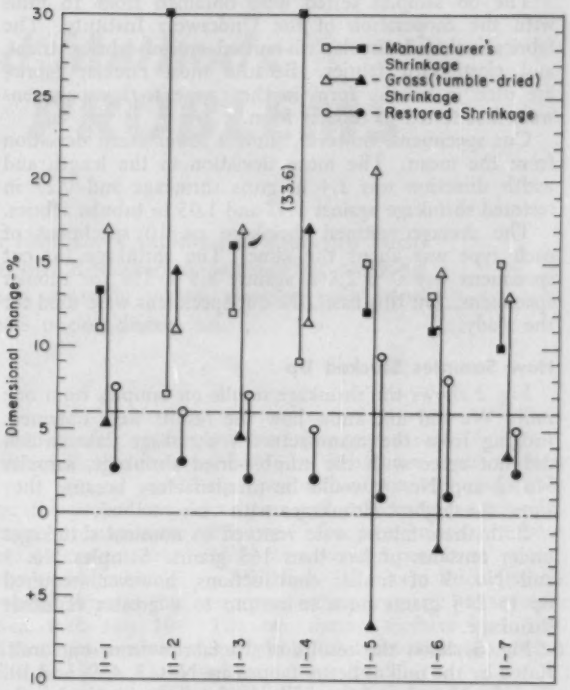


FIG. 2. SHRINKAGE RESULTS on samples from one mill did not agree with the tumble-dried shrinkage. Samples No. 2 and No. 4 were considered unsatisfactory by the manufacturer's tests.

The shrinkage after restoration reveals the total reduction in area and also the influence of one direction of shrinkage on the other. This same action takes place in drawing a fitted garment such as a man's undergarment onto the body. An undue gain in the garment length is compensated for in decreased width; so the two factors cancel each other to provide a good fit.

The restored-shrinkage figure, which is taken from the 10-in. mark, can be translated in terms of grams of restraining force through the use of the representative calibration graph shown at Fig. 1.

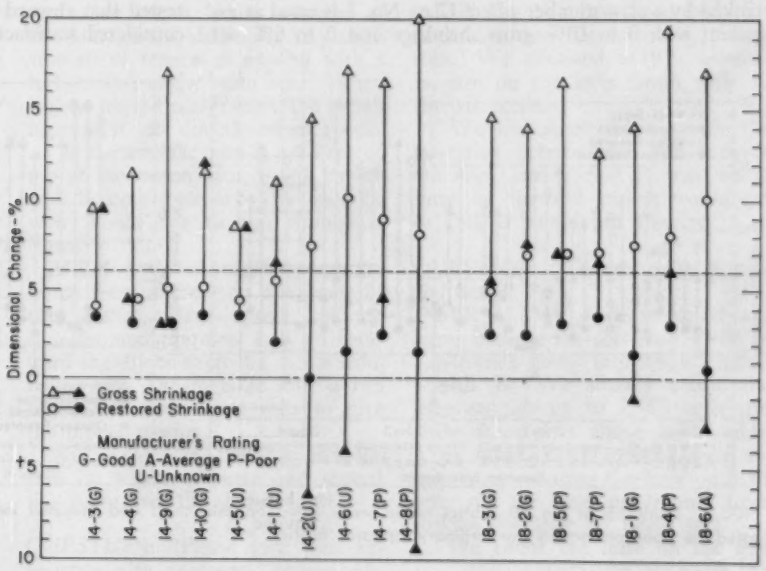


FIG. 3. TEST RESULTS of fabrics from one mill agree with the manufacturer's rating when 6% tolerance for restored shrinkage is used. Another mill's fabrics, at the right, show some disagreement.

The 68 samples tested were obtained from 16 mills with the cooperation of the Underwear Institute. The fabrics included circular rib-knitted cotton fabrics, tricot, and elastic-yarn fabrics. Because most circular fabrics are used in tubular form in the garment, the specimens were first tested in tubular form.

Cut specimens, however, show a lower mean deviation from the mean. The mean deviation in the length and width direction was 1.4 in gross shrinkage and 0.27 in restored shrinkage against 1.57 and 1.05 in tubular fabrics.

The average restored shrinkage on 10 specimens of each type was about the same. The shrinkage for cut specimens was 9 x 2.5% against 8.5 x 3% for tubular specimens. On this basis, the cut specimens were used for the study.

How Samples Stacked Up

Fig. 2 shows the shrinkage results on samples from one mill. We did not know how the results were obtained. Judging from the manufacturer's shrinkage data, which did not agree with the tumble-dried shrinkage, samples No. 2 and No. 4 would be unsatisfactory because they show the highest shrinkages with his method.

Both these fabrics were restored to nominal shrinkages under tensions of less than 165 grams. Samples No. 3 and No. 5 of similar constructions, however, required up to 215 grams force to restore to a greater resultant shrinkage.

Fig. 3 shows the results of 10 fabrics from one mill. Rated by the mill as better fabrics are Nos. 3, 4, 9, and 10. Samples Nos. 7 and 8, which are flat fleece and swiss rib, were the worst performers, with other fabrics falling in between.

Using a 6% tolerance for restored shrinkage, the mill rankings exactly fit the data obtained on the knit-shrinkage gauge.

Fig. 3 also shows the results from another mill that show some disagreements on rating. One sample the mill classed as of good performance showed a higher restored shrinkage than two other samples the mill classed as of poor performance.

A sample classed of average performance spanned the entire lot of this mill's specimens in results on the knit-shrinkage gauge and in gross shrinkage obtained in laundering and tumble drying.

The test results shown in the accompanying table illustrate the results of gross shrinkage and restored shrinkage on the assorted group of fabrics tested. The samples are ranked by a class number where Class No. 1 is rated as excellent with 0 to 10% gross shrinkage and 0 to 6% net shrinkage. Class No. 6 is rated as very poor with unlimited gross shrinkage and over 8% net shrinkage.

Class No.	Description	Dimensional Change (%)	
		Gross	Net
1	Excellent	0 to 10	0 to 6
2	Very good	0 to 15	0 to 6
3	Good	Unlimited	0 to 6
4	Fair	Unlimited	0 to 7
5	Poor	Unlimited	0 to 8
6	Very poor	Unlimited	Over 8

FABRICS can be ranked by class number according to their dimensional changes. Fabrics that fall into Class 1 are suitable for such uses as dresses and suits. Class 4 fabrics are suitable for men's underwear.

An analysis of this classification system showed these performances:

Class	Number	%
1	5	7.5
2	16	23.5
3	5	7.5
4	12	17.5
5	14	20.5
6	16	23.5

If Class 5 and 6 fabrics are eliminated as poor performers for apparel, the remaining classes representing satisfactory fabrics would be 56% of the total.

The lack of correlation between gross shrinkage and the ability of a fabric to restore to shape is illustrated in the results obtained on Class 5 fabrics compared to fabrics in Class 3 and 4. These results are shown in Fig. 4.

There are many instances of Class 5 fabrics that show lower gross shrinkages, in one direction or the other, than fabrics in the lower classes. But the shrinkage that takes place in the Class 5 group is more rigid and cannot be withdrawn easily. Fabrics with such rigidity after laundering fail to restore under nominal tension and consequently register as high shrinkage after restoration.

The restored-shrinkage figures obtained on the gauge reflect the amount of shrinkage that occurs in actual use, whereas gross shrinkage does not. Many of the samples tested that showed gross shrinkages of 10% and more are considered statisfactory in consumer use.

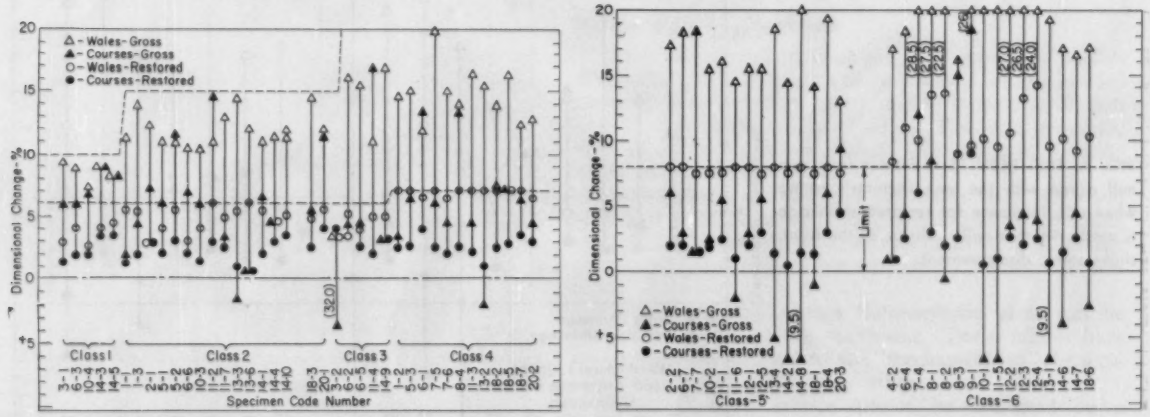


FIG. 4. SAMPLES of the 68 fabrics tested were rated on this chart and grouped into six classes. Class 5 and 6 fabrics are rated as poor performers for ordinary apparel fabrics.

Modern Machines And Methods Reduce SLASHING PROBLEMS

• At the fall meeting in the Harrison Hightower building at Georgia Tech, Textile Operating Executives of Georgia discussed a number of slashing problems. Size viscosity, drying cans, metallic yarns, presser rolls, and thread waste were among the subjects under discussion.

THE SLASHING SECTION of the fall meeting of the Textile Operating Executives of Georgia was led by Lee Wynn, superintendent of Canton Cotton Mills. The first question was:

"What is the viscosity of the size you use and how do you control the viscosity?"

Mill E—"We do not use a viscometer but check each batch of size visually. We maintain the desired viscosity by changing the pressure at the homogenizer."

Mill I—"We have an electrically controlled viscometer on one of our slashers, and the recording chart shows the size viscosity throughout the running of a set. We also test viscosity daily with a brass cup and a stop watch. It takes about 11 or 12 secs. for the size to run out of the cup. We trace the trouble back to its source when there is any variation. Our size pickup is about 11%."

Mill N—"The viscosity of our thin-boiling size mix is measured in the storage kettle by a Norcross viscometer. A reading of the viscosity is recorded every 2 mins. We control the viscosity by carefully measuring the water, size, and starch that goes into each kettle and by carefully controlling the cooking cycle of each kettle. We try to maintain a constant temperature in the storage kettle."

Mill O—"We use a flow-type cup to check the viscosity of size. High reading at the cooking kettle is 24 secs. Low reading at the size box is 20 secs.

"A sizeometer controls our sizing process. When the size reaches a certain viscosity, the steam is automatically cut off and the circulation pump stops. At this point the size is transferred to the storage kettles."

QUESTION: "Please give your experience in changing from low-pressure two- or three-cylinder slashers to the multiple-cylinder high-pressure cans."

Mill B—"We have recently installed a nine-can high-pressure slasher. We get about 33⅓% more production with this slasher than was possible with the conventional three-cylinder low-pressure slasher.

"We do not have the proper controls on this slasher to get maximum efficiency but believe we can improve the present efficiency considerably."

Mill N—"We replaced three of the three-cylinder slashers with two 10-cylinder slashers. Steam pressure was increased from 10 lbs. to 35 lbs. Output speed was increased from 42 yds. per min. to 70 yds. per min. on a set of 4,609 ends of 14.25s yarn.

"Our increase in pounds per hour has been from 970 to 1,600, or 65%. On a weekly basis, our increase in production has been only 47% because the downtime for changing sets remains the same. We do not have the larger creels or magazine creels."

QUESTION: "How do you add metallic yarn to warps? How do you maintain proper tension to prevent slackening or breaking of metallic yarn during weaving?"

Mill C—"When we have a large number of metallic-yarn ends, 75 or more, we use a beam mounted at the front of the slasher. A very small amount of tension is applied with a leather strap at the beam head. When we run fewer than 75 ends, the metallic yarn is run directly off of spools.

"If the metallic yarn is not kept on top of the cotton yarn, it will stretch and become twisted. The metallic yarn should not be run through a lease."

Mill I—"We add metallic yarn to warps from a creel on the front of the slasher. Yarn spools run on spindles, and the creel is tilted backward slightly to keep the spools from falling off. The metallic yarn is run under and over three rods to give the proper tension."

Mill K-2—"We put the metallic yarn on a warper beam and mount this beam over the slasher front."

QUESTION: "Please give your experience with pneumatic presser rolls and traversing presser rolls."

Mill I—"We have two slashers equipped with pneumatic presser rolls and two with traversing presser rolls. We use 60 lbs. pressure and get about 10% more yardage per beam."

Mill K-2—"We have three slashers equipped with pneumatic presser rolls. The two narrow slashers have traversing rolls, and the wide slasher has an expansion head.

"We increased the yards per beam on our narrow slashers about 30% with a pressure of 60 lbs. The wide slasher showed an increase of yards per beam of about 12%."

Mill N—"We have three slashers equipped with pneumatic presser rolls and traversing presser rolls. We have realized an increase in beam yardage of about 10%.

"We use 42 lbs. pressure on a set containing 4,609 ends of 14.25s yarn. A set of 5,556 ends of 24s yarn has a pressure of 32 lbs. Both these styles are on 26-in.-dia. beams—50 ins. between heads. The beams hold 1,100 yds. of 14.25s yarn or 1,375 yds. of 24s yarn."

Mill Q—"We have used both the pneumatic and the traversing presser rolls. We obtained a 20% increase in yarn on the loom beam with 40 lbs. air pressure.

"We had some trouble with the traversing presser roll. We overwax our yarn, and a coat of wax would form on the roll and it would get so slick it would not traverse."

QUESTION: "Do you strike or pick your leases?"

Mill A—"We have to count our leases because the sets have 4,300 to 6,200 ends going into 44-in. cloth."

Mill B—"We usually count the lease on sets up to 2,500 ends and strike it on sets above 2,500 ends. A smoother, better-running warp results from counting the lease on light sets, and we have no trouble from striking the lease on heavy sets.

"We count the lease on the first

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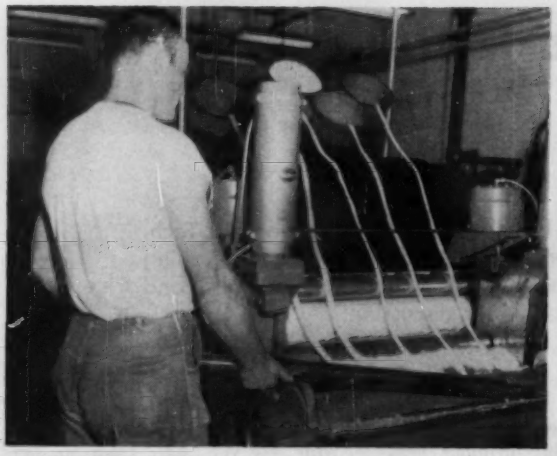
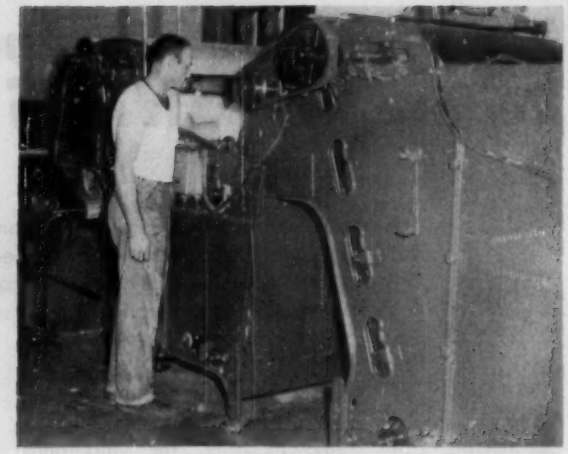


REWORKABLE SLIVER WASTE is fed into the picker laps from cans placed on top of the picker.



FEEDER HOPPERS in tandem open and feed Dacron staple into the two-beater picker.

How Rhyne-Houser Cards and Spins DACRON-COTTON BLENDS

Rhyne-Houser Mfg. Co., for many years a spinner of extra-fine yarn from Egyptian cotton, is now producing blends of Sak and man-made fibers. Highlights—

- **Cotton is processed separately through combing**
- **Cards for Dacron have special mill-built fancies**
- **Blending takes place at drawing**

Rhyne-Houser Mfg. Co., Mill No. 1, Cherryville, N. C., which formerly spun nothing but long-staple Egyptian cotton, is now spinning Egyptian cotton blended with Dacron, Orlon, and silk. Capacity production is about 25,000 lbs. a week.

About 14,000 lbs. of 40s to 80s yarn is spun from 35% Sak cotton and 65% Dacron. This yarn is used for broadcloth and suiting.

From 80s to 120s glove-twist yarn is made from Sak and combed Peeler cottons. Yarn for broadcloth is made from Sak blended with Orlon. Knitting yarns are spun from 80% cotton or Orlon and 20% silk.

To make yarn from 1½-in. Sak cotton and 1.5-den. Dacron staple, the cotton is processed separately through opening, picking, carding, combing, and two processes of drawing.

Dacron is processed separately through picking, carding, and one process of lap-back drawing.

Then four ends of Dacron are blended with two ends of cotton on breaker drawing followed by a final finisher drawing.

Here's how Rhyne-Houser makes 50s, a typical number, from fiber to yarn—

Ten Bales Are Laid Down

The cotton opening line consists of three No. 7 openers, a No. 11-over-12 cleaner, and a Superior cleaner. Ten bales of cotton are laid down and fed into this equipment.

After cleaning, the cotton is made into a 13½-oz., 48-yd. lap on a one-process three-beater Kitson picker equipped with a blending reserve. Production is 336 lbs. per hr.

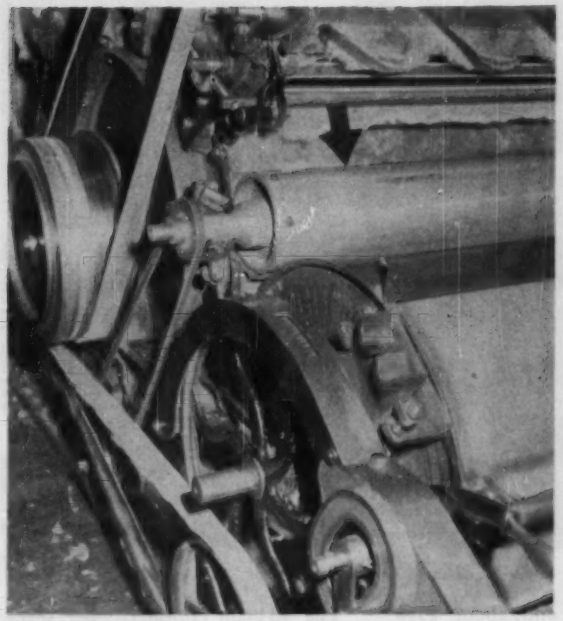
The back three-blade beater runs 550 rpm., the middle Kirschner beater 650 rpm., and the front beater 750 rpm. Fan speeds from back to front are 800, 800, and 1,000 rpm.

Waste taken out in the opening and picking room averages 2.4%. Lap evenness on the Saco-Lowell tester is 93%.

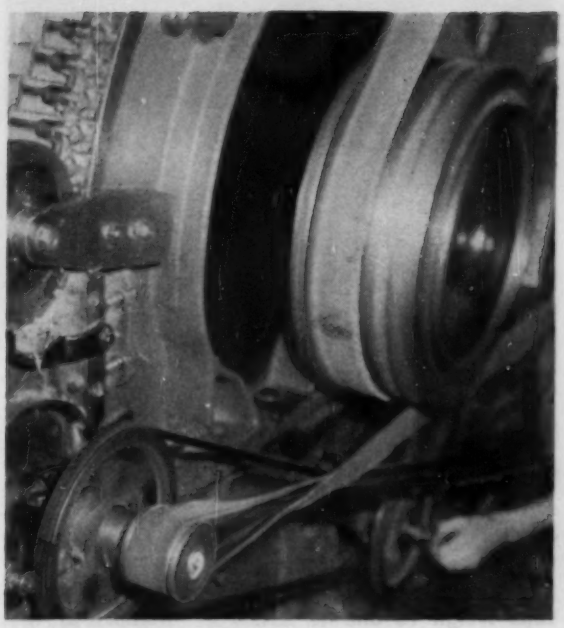
Before the opening and picking machines are started up on each shift, the picker operator drags out all waste boxes, opens screens and removes cotton lumps, cleans pans under conveyors, and oils all machinery. The waste grinder, assisted by the picker operator, mops all opening and picking equipment once each shift and cleans out sand boxes once a week.

Dacron Is Opened at the Picker

The Dacron stock is opened by two No. 5 hoppers in tandem behind a one-process two-beater picker equipped



FANCY (arrow), built by the mill, has aluminum heads and can be lifted by one man.



V-BELT DRIVE from the lickerin shaft drives the fancy. Grease-sealed ball bearings eliminate oiling.

with a Long pneumatic lap control and a compressed-air pin puller.

An 11¾-oz., 56-yd. lap (14 ins. in diameter) is produced every 8½ mins. Evenness is 78%.

Kirschner carding beaters are used to open the Dacron stock. The back beater runs 650 rpm., the back fan 1,000 rpm., the front beater 950 rpm., and the front fan 1,200 rpm.

The cotton picker laps are carded into 44-grain sliver at 4 lbs. per hr. on 25 Whitin cards. About 9 lbs. of sliver are put in 12x36 cans.

Cylinder speed is 165 rpm., doffer speed 5 rpm., flat speed 3 ins. per min., and lickerin speed 430 rpm.

The cards are stripped every 2 hrs. and 40 mins. They are hand-stripped once a week and before each grinding. Wire is ground for 5 hrs. every 12 days.

Special Fancy Is Added

A number of modifications were made on the 17 cards used for Dacron. The most important change was the addition of a special fancy developed and built by Rhyne-Houser personnel.

The fancy, operated by a V-belt from the lickerin shaft, has ball bearings, aluminum heads, and a balancing adjustment that assures exact setting at the cylinder. One person can remove the fancy without difficulty.

Solid screens were substituted for perforated screens, and duller points were put on the lickerin. The hole in the coiler plate was opened and tapered to keep the sliver from bunching up and causing chokes when static is bad.

Dacron stock is carded into a 42-grain sliver at 5 lbs. per hr., and about 18 lbs. are put in a 12x36 can.

Cylinder and doffer speeds are about the same as for the cotton stock, but the flats and lickerin are slowed down. The speeds are: cylinder 165 rpm., doffer 6 rpm., flats 1½ ins. per min., and lickerin 320 rpm.

Cards on Dacron are hand-stripped once every 24 hrs. Grinding schedule is the same as for cotton cards.

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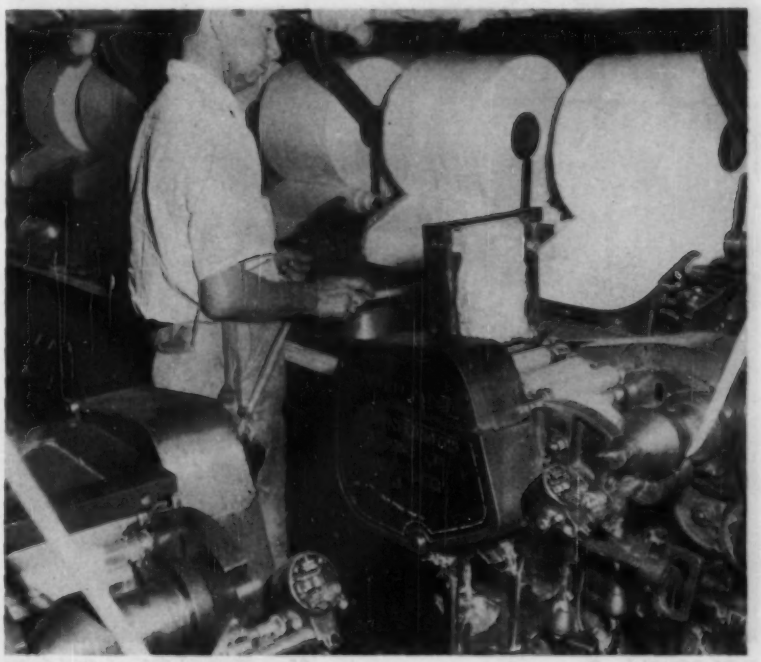
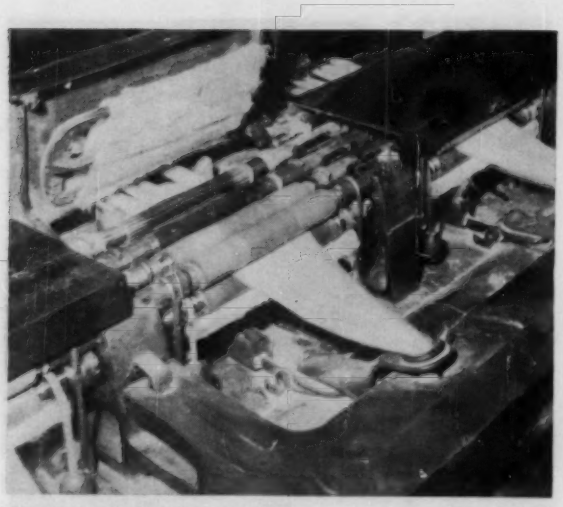
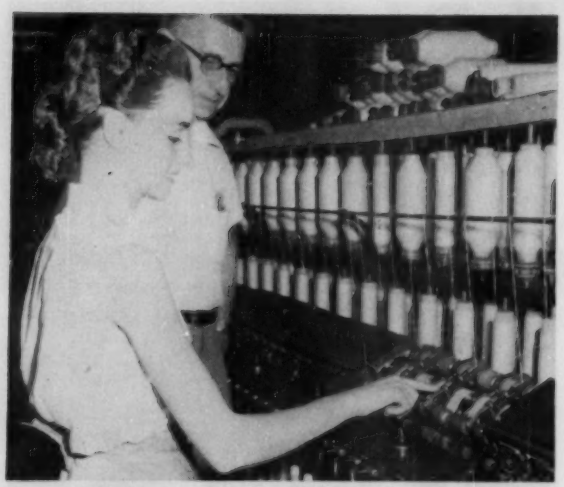


COMBERS produce a 48-grain sliver at 84 nips per minute. Evenness is 16%.



COTTON AND DACRON are blended at drawing. Two covered and two metallic top rolls are used.



FINE YARN for glove twist is spun on frames that have been modernized recently.

Laps Weigh 15 and 17 Lbs.

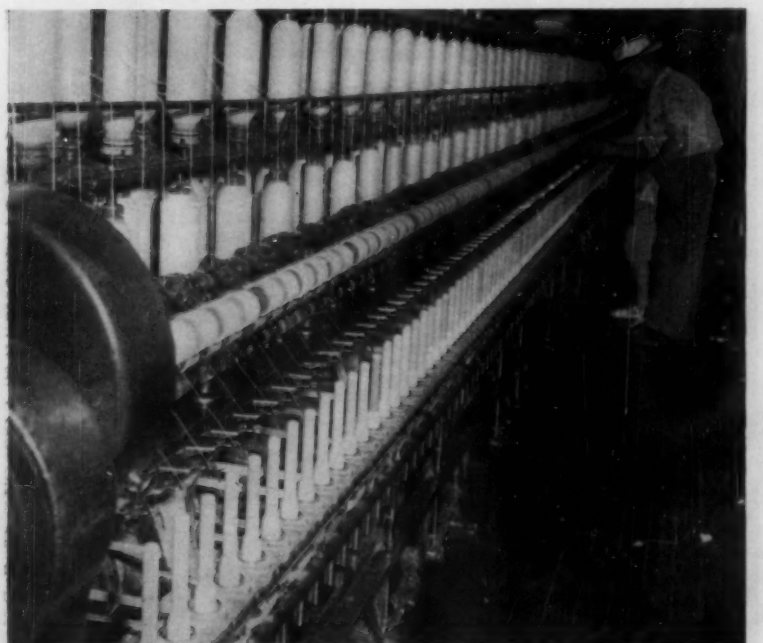
After carding, the cotton sliver is made into a 468-grain 15-lb. lap on a Saco-Lowell sliver lapper, 20 ends up. Draft is 1.6. Next, a 518-grain, 17-lb. lap is made on a ribbon lapper, four ends up. Draft is 4.30, and front-roll speed is 466 rpm.

The cotton is then combed on 15 Nasmith combers, six ends up, at 9½ lbs. per hr. A 48-grain comber sliver is made at 84 nips per minute, and 14 lbs. are put into a 12x36 can. Evenness is 16%, and about 15% noils are produced.

Lap-Back Drawing Is Used

After carding, the Dacron sliver is put through a Saco-Lowell lap winder, 12 ends up, and made into a 500-grain lap that weighs 10 lbs. This lap is made without any appreciable draft.

The lap is converted into 45-grain drawing sliver on drawing frames equipped with four-over-four metallic rolls. Draft is 11.



ENDS DOWN for Dacron-cotton yarn average from 25 to 35 per 1,000 spindle hours. Evenness is 70 to 75%.

The 48-grain cotton comber sliver is put through three-over-four breaker and finisher drawing, six ends up. A 48-grain sliver is produced, and two ends are fed into another set of breaker drawing along with four ends of the 45-grain Dacron sliver. It is here that blending takes place.

A 45-grain Dacron-cotton sliver is produced by the finisher drawing and made into roving on 10x5 slubbers and 8x4 speeders. The slubbers produce a 1.42-hk. roving with a draft of 7.20. Flyer speed is 750 rpm., front-roll speed 188 rpm., jack-shaft speed 270 rpm., and draft 7.20. About 25 oz. are put on the bobbin.

The 1.42-hk. roving is then made into 4- and 5-hk. roving on J-3 8x4 speeders. For the 5-hk. roving, front-roll speed is 130 rpm., jack-shaft speed 270 rpm., and draft 7. Uster evenness averages 32%.

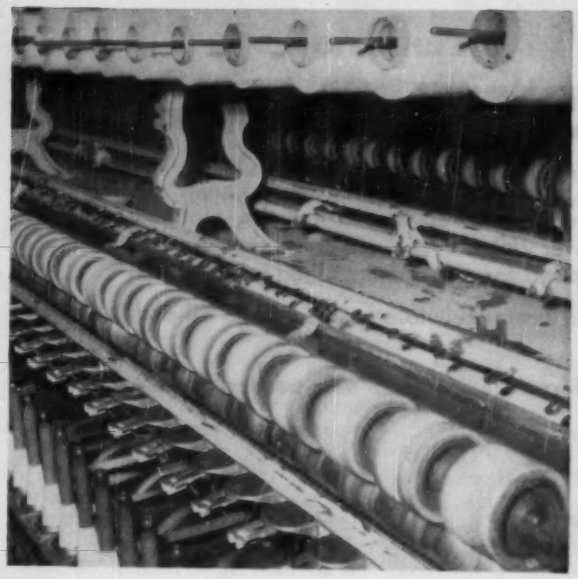
Other equipment for producing 6-hk. roving for finer numbers includes one 8x4 slubber and two 7x3½ speeders.

How the Yarn Is Spun

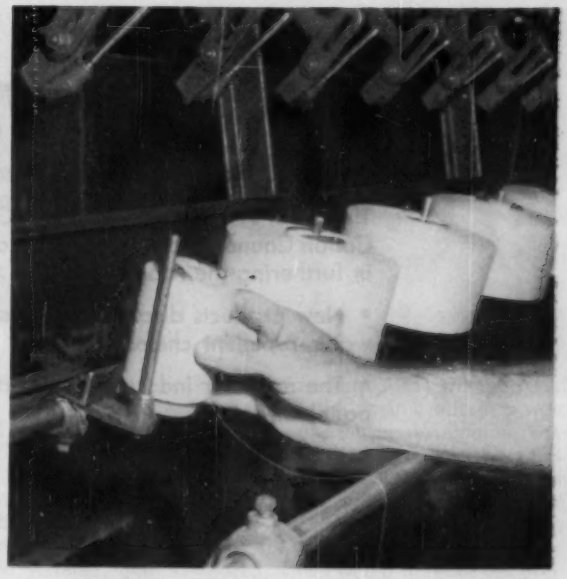
In the spinning department, there are 71 Whitin and Fales & Jenks frames that have a total of 17,652 spindles. These frames are 3¼-in. gauge and have 1⅜- and 1⅞-in. rings and ball-bearing spindles.

Six Whitin twisters have been converted into long-draft spinning frames with Bouligny drafting change-overs and umbrella creels.

Traveler selection is very important at Rhyne-Houser. For the finer yarns, traveler numbers range from 5-0 for 50s to 24-0 for 120s. For coarser numbers, a No. 10 traveler is used for 20s and a No. 5 for 30s.



TWIST-ON-TWIST YARN is made with a spindle speed of 4,500 rpm. Front rolls are 1½ ins. in diameter. Spindle speed is 7,500 for two-ply yarn.



STOP GAUGE is used on winders when yarn is rewound from cheeses. Packages range from ½ to 2 lbs. The frames have 100 spindles each and run 550 yds. per min.

To spin 50s warp yarn, spindle speed is 9,600 rpm., front-roll speed 106 rpm., twist multiplier 4, total draft 20, and break draft 1.28. Whitin Casablancas drafting is used.

Break Factor Is 1,850

About 3 oz. of yarn is put on the bobbin. Break factor averages 1,850, and ends down are 25 to 35 per thousand spindle hours. Evenness for 50s is 70 to 75%; for 105s, it is 93%.

Doffing cycle for 50s yarn is about 7 hrs. for a 1 11/16-in. ring and 9 hrs. for a 1⅝-in. ring.

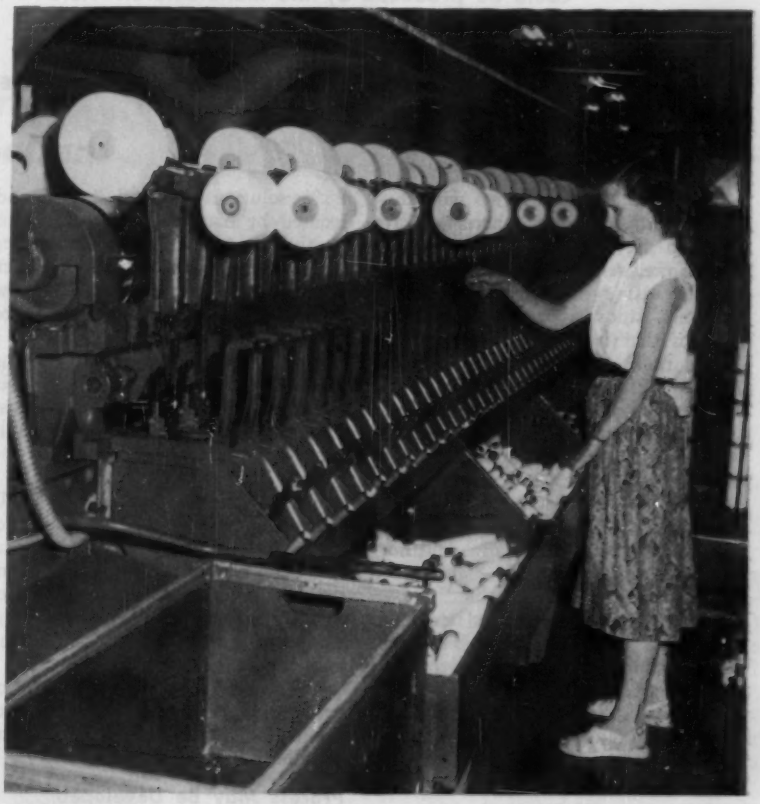
Scheduled doffing is not used at Rhyne-Houser because of the varying yarn numbers and ring sizes. Spinners run 12 sides and do all cleaning except roll picking.

Rhyne-Houser recently installed a new 346-spindle Barber-Colman spooler that runs 1,130 yds. per min. Packages weigh from ¾ to 2 lbs. each.

Seven Foster 102 winders produce ½- to 2-lb. cones, mostly from cheeses. These machines have 100 spindles each and run 550 yds. per min. Operators are assigned from 100 to 200 spindles each.

Yarn is twisted on 24 Fales & Jenks frames that have 2- and 2⅛-in. rings. Two-ply yarns are twisted with a spindle speed of 7,500 rpm.

Twist-on-twist glove yarn is made with a spindle speed of 4,500 rpm. The 1½-in. front rolls run 100 rpm.



SPOOLER runs 1,130 yds. per min. and makes a ¾- to 2-lb. package. This spooler has 346 spindles. The cheeses are wound into cones at 550 yds. per min. The cones weigh from ½ to 2 lbs. each.

Highlights From the CHEMICAL-FINISHING Conference

This year's Chemical-Finishing Conference, sponsored by the National Cotton Council, was attended by over 280 mill men and scientists interested in furthering the rapidly growing trend toward chemical finishing of cotton

- New products discussed included acetal cellulose reactants and oil-and-water repellent chemicals
- The need for industry-wide performance standards was pointed up in a panel discussion

Recuring Resin Finishes To Produce Durable Creases

- A year ago a preliminary report covered early experiments in refinishing garments made from resin-treated cottons so that durable trouser creases could be produced by the manufacturer. Here is what has developed in the past year

By J. DAVID REID, ROBERT M. REINHARDT, and RUSSELL M. H. KULLMAN,
Southern Regional Research Laboratories

Wash-and-wear garments with durable pleats or creases where they are wanted are possible with dimethylol cyclic urea resin formulations.

The basic process developed by the current study is one of recuring fabrics that have been finished with CEU resins.

Several factors are important to the successful production of durable pleats or creases. After testing many samples from various manufacturers, the best results seemed to occur where the original finish had had a soft cure, in the order of 4 mins. at 212° F. Hard cures, at 320° F. for 2 min., did not, by recuring, produce satisfactory creases or pleats.

Laboratory work showed that the optimum curing conditions for producing durable creases upon recuring were between 212° F. and 248° F., with catalyst applied at three times the normal amount. Creases ironed into samples treated in this way were durable to 12 launderings.

Commercial Finishes Varied

Fabrics chosen from merchants' stocks were treated locally with a 4.5% solution of Catalyst H-7 and recured by hand ironing. After a rewashing treatment, the samples showed variation in crease resistance, from better to worse than the original fabrics. The creases ironed in varied from excellent to good.

By recuring the same samples using water only on local areas, the creases obtained were almost as good as those produced with extra catalyst, probably because of residual catalyst left in the goods.

Other trials involved adding CEU resins plus an acrylic resin, a silicone, and additional catalyst to local areas and then recuring. The results from these samples were generally better than those obtained by adding catalyst alone to the water used in dampening local areas for recuring.

On some fabrics, the addition of extra resins and catalyst locally produced stained areas that would not be commercially acceptable.

Process May Be Developed

Generally, it is not easy to produce durable creases or pleats in all types of commercially finished fabrics. The resin used, the conditions of cure and afterwashing, the age of the fabric, and its construction all play a part in the results to be expected.

If the cloth has had a poor initial cure—under 212° F.—it will produce unsatisfactory creases upon recuring, and the same goes for curing at over 248° F.

The mechanism of recuring is thought to be based on the formation of new methylene ether-cellulose crosslinks that develop when the fabrice are wetted with a catalyst solution. Poorly cured resins probably migrate with the solution and give poor creases. Well-cured resin resists the hydrolytic action of the residual or added catalyst and probably forms the new crosslinks that help to produce durable creases.

The conclusion to be drawn from the work to date is that if durable creases or pleats are to be expected from a recuring process, the initial resin finishing should be done so that recuring with water or water plus catalyst will produce desirable local changes in the resin structure and the resin-cellulose bonds.

How Silicone Softeners Affect Resin-Finished Cottons

• Silicones in combination with the usual resins used in cotton finishing improve wrinkle resistance and provide durable softening

By B. G. SIMPSON, Dow Corning Corp.

Silicones incorporated into resin-finishing baths give durable softening effects accompanied by improved physical characteristics.

Originally introduced as water repellents, the silicones are used at lower concentrations for softening fabrics.

The same crosslinking action takes place in softener application of silicones if they are catalyzed as occurs in water-repellent treatments.

The work done with silicones as softeners included their use with:

Dimethylolethylene urea (DMEU) blended with methylol melamine

DMEU blended with an acrylic resin

DMEU blended with polyvinyl alcohol (PVA)

Three types of organic softeners were also used with these resins to establish the differences in effect of different softeners. These were an anionic softener, a cationic softener, and a nonionic softener. The resin combinations were catalyzed with organic-amine catalysts and applied by padding, followed by drying and curing at 300° F. for 7 mins.

The silicones generally improved wrinkle resistance, tear strength, and sewability; the organic softeners were slightly superior in maintaining tensile strength and flex-abrasion values. There is some indication that because of the superior wrinkle resistance of fabrics carrying the silicone softener that the resin content could be reduced, which would improve the overall physical characteristics of the fabric.

Silicones showed the greatest improvement in the fabrics' physical properties when used with the DMEU-melamine finish and the least when used with the DMEU-PVA finish.

How To Make Fabrics Oil and Water Repellent

• Treating fabrics so that they are resistant to both oil- and water-borne stains is possible with compounds now available. Application methods are conventional, and some formulations show good durability to laundering.

By LEON SEGAL, Southern Regional Research Laboratories

Two fluorochemical treatments have been developed that make cotton fabric resistant to both oil- and water-borne stains.

One treatment is based on applying a chromium complex of a perfluoro acid, and the other employs a fluoro-rubber latex.

Best results were obtained with the chromium complex of perfluoro-octanoic acid and the latex of poly (1, 1–dihydro-perfluorobutyl acrylate. These compounds affected tensile strength only slightly and are commercially available.

Other acrylic polymers used included Hycar 4501, Rhoplex FRN, and Rhoplex B-15.

How Materials Were Applied

Simple padding and drying procedures were used to apply the various formulations. Best results came from two-bath methods where the latices were used with the perfluoro-chrome complexes, with an air drying between runs.

To get around the greenish tint produced by the chromium complexes, trials were run using aluminum triacetate as a mordant to fix solutions of perfluorbutyric acid and perfluoro-octanoic acid.

The samples were checked for oil resistance by spotting them with four different oils: S.A.E. No. 10 motor oil, paraffin oil N.F., refined olive oil, and refined cottonseed oil.

What the Tests Showed

The samples treated with Hycar 4501 and chrome-complex showed improved wetting times (up to 168 hrs.) over those treated with the chrome complex alone, and they had improved abrasion resistance.

Fabric construction was an important factor in the results, 80-square print cloth being generally easier to proof than whipcord or sateen.

The hydrocarbon oils generally wetted the fabrics more easily than the glyceridic vegetable oils.

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Acetal Reactants Produce Wrinkle-Resistant Finishes

• Acetal reactants now available link with cellulosic fibers to give durable finishes that are moderately wrinkle resistant and do not retain chlorine. Here is a report on how the products affect cotton fabrics.

By J. B. IRVINE and B. H. KRESS, Quaker Chemical Products Co.

Acetals that react with cellulose are derivatives of aldehydes, prepared by reaction with alcohol in the presence of an acid or metal halide as a catalyst.

The products so far most used in textile finishing are called glycol aldehydes, and one in the process of adaptation to textile purposes is known as a pentaerythritol acetal. Finishing with acetals costs about the same as finishing with the older resins.

The advantages of the acetals as cotton-finishing agents include complete resistance to chlorine and excellent chemical stability to hydrolysis.

Another important property of the glycol acetals is that they produce excellent shrinkage control that is maintained through many launderings.

Various Hands Obtainable

The hand of fabrics finished with the glycol acetals varies with the product. The simplest acetal leaves fabrics very soft, and the modified glycol acetal produces a full crisp hand.

The products work well with starch ethers to produce various modifications of hand to suit the fabric.

Tensile-strength losses in working formulations of glycol acetals are generally lower than those caused by urea or melamine-based resins.

Crease resistance is not as high as that produced by urea resins but approaches that of some melamine formulations. The crease resistance imparted by the modified glycol acetal is somewhat more durable to laundering than that produced by modified melamine finishes.

The unmodified glycol acetal (Quaker Reactant SC) produces a soft absorbent hand that may be built into permanent finishes with starch ethers.

The modified glycol acetal (Quaker Reactant 16) gives a bulky hand of medium crease resistance. It can be combined with other resins to add bulk without decreasing crease resistance.

How Finishes Affect Water Absorbency

• By measuring the drying rates of cotton fabrics finished with a reactant resin, a surface resin, and a water repellent, an indication is gained as to how to finish cottons that have good absorbency and a faster rate of drying

By RICHARD STEELE, Rohm & Haas Co.

Fabrics that have been immersed in water and hung up to dry exhibit three effects during the approach to equilibrium with the surrounding atmosphere. First, there is a rapid loss of water as it drains from the sample; then comes a period of constant-rate drying until the critical point is reached; and then there is a final stage during which the drying rate falls off as the sample comes to equilibrium.

The constancy of the drying rates at the various stages varies somewhat with sample size and type of fiber but generally is fairly consistent.

An important factor in all drip-drying operations is the water entrained in the fibers in either a constant capillary effect or a discontinuous capillary effect.

Finish Affects Water Content

The amount of water contained in the fiber and the water entrained by capillary action depend upon the finish.

Experiments showed that when water repellents were added to the fabric, the continuous capillary effect was almost totally absent, and the water retained after draining is one-fourth to one-fifth the amount of unfinished fabric. The discontinuous capillary phase was also much affected.

Work with resins such as Rhonite R-1 showed that there was an appreciable lowering of the water content of the fabric, probably as a result of the reduction in the discontinuous capillary effect.

A surface resin of the acrylic type that produces a hard tough film over each fiber reduces entrained water in the continuous capillary phase very considerably. The theory behind this effect is that the fibers are more or less spot-welded together and cannot open up to provide continuous channels for the water. The absorbency of the fabric for small amounts of water is not impaired, however.

Further work with combinations of finishing materials is necessary to establish the optimum conditions of good absorbency, low water content, and other factors that produce a finish suitable for the end use.

What Determines Cellulose Reactivity

- Much research on the nature of the cellulose molecule and why it behaves as it does to various chemical treatments has failed to bring accord between researchers as to the exact mechanisms involved
- Anomalies in the reactivity of cellulose in different forms to mercerizing, acetylation, and behavior toward water alone point up the difficulty of precise definitions in describing what happens when cellulose is treated chemically

By **A. R. URQUHART**, British Cotton Industry Research Association

Samples of cellulose of apparent chemical similarity but different physical form react quite differently to chemical treatment.

One of the important factors that affect cellulose reactivity is the water content of the fiber. Most of the reactions of cellulose occur in the hydroxyl groups, and there is evidence to show that these groups bond water when it is available and are more reactive when water is held by hydrogen bonding. The effect is partly in the crystalline areas of the molecule but mainly in the amorphous areas. The strength of the hydrogen bond varies in the amorphous regions.

Dry cotton will absorb water first on any free hydroxyl groups or groups held together with hydrogen bonds of lowest strength. There is a hysteritic effect between absorption and desorption in favor of an increased reactivity potential during the absorption cycle.

Cotton that has been overdried at 110° C. has its capacity for taking up water more or less permanently reduced. But if the cotton is heated in an atmosphere of high humidity, its

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Drycleaners Progress With Wash-And-Wear Finishes

- Continuing work to develop satisfactory methods for the production of wash-and-wear finishes by drycleaners is showing some promise. A separate curing operation appears to have produced improved results over early trials that did not include this step.

By **ROBERT T. GRAHAM**, National Institute of Drycleaning

A basic procedure for producing wash-and-wear finishes on plain-finished fabrics is to soak the goods in a solution containing:

14%	cyclic urea resin
5%	thermoplastic resin
2%	silicone emulsion
1.25%	metal salt catalyst
0.40%	silicone catalyst
0.10%	surface-active agent

The goods are extracted to 75% moisture pickup and then dried on a hothead press at 315 to 320° F. Areas requiring shaping with a hand iron are ironed at the setting for silk (330 to 360° F.).

After the fabrics or garments are perfectly pressed and dried, they are put in a curing cabinet at 175° F. for one or more hours, depending on the weight of the goods.

The bulk of the work done to date has been on piece goods; extensive work with garments is to follow.

What Results Are to Date

The procedure outlined above produces wash-and-wear fabrics that will stand 10 launderings at 160° F. without appreciable loss of appearance. The laundering cycle includes a 15-min. suds at 160° F., a 5-min. rinse at 140° F., and extraction and tumble drying at 150° F.

Wrinkle recovery dropped somewhat after 10 launderings, but it is thought that a longer curing period will overcome this trouble on the fabrics most seriously affected.

Formulations including starch to build up body in the fabrics produced equally good results.

All the samples withstood five drycleanings very well.

The economics of this type of refinishing does not appear to be out of line. Cost estimates derived from timed operations show that a cotton-cord suit could be treated for $1.65 to $1.75, depending on style. Sport shirts can be handled at about 90¢.

How Dialdehydes Affect Cotton Strength, Crease Resistance

- Long-chain aldehydes were examined to see if good crease recovery could be produced on cotton fabrics without the high strength loss peculiar to the use of formaldehyde for the purpose. All other things being equal, there is no evidence so far that the long-chain aldehydes are any better than formaldehyde in improving the strength-crease resistance ratio.

By **M. D. HURWITZ** and **L. E. CONLON**, Rohm & Haas Co.

Tests to determine the effect of different aldehydes, the aldehyde concentration, catalyst concentration, and the time and temperature of cure were run on bleached 80-square fabric.

After treating with the aldehydes, the samples were washed at 140° F. in a home-type washer.

The aldehydes used were formaldehyde, glyoxal, glutaraldehyde, and α-hydroxy-adipaldehyde.

The trials showed that glutaraldehyde produces more crease recovery than α-hydroxy-adipaldehyde, which was about as effective as formaldehyde. Formaldehyde is much more effective than glyoxal.

All four aldehydes produce varying strength losses, which would probably even out at any one moment or degree or reaction.

When the amounts of formaldehyde were varied, higher concentrations did not improve results beyond a certain limit; with glutaraldehyde there was a steady improvement in crease resistance as the concentration rose to 1N.

What Variations Produced

There was no trend in tensile or tear strengths as aldehyde concentrations went up beyond the limits of 0.2 to 1.0N used in the experiments.

Varying the amount of catalyst (pyridine hydrochloride) improved crease resistance up to catalyst concentrations of 0.11N but also decreased tear strength to 58% in the range 0.005 to 0.05N, with a further 10% decrease in the 0.05 to 0.22N range.

Varying the curing time and temperature was tried with α-hydroxy-adipaldehyde. A 300° F. cure for 5 mins. produced better crease resistance than curing at 240° for 5 mins. Increasing the curing time to 20 mins. did not produce an appreciable improvement at either temperature. However, tensile and tear strength was reduced with extended curing time, reaching a plateau at the 10-min. cure. Strength losses were also greater at 300° F. than at 240° F.

Other catalysts such as zinc sulfate and magnesium chloride did not produce good crease recovery, and the zinc sulfate induced excessive acid damage.

The principal advantage of using high-molecular-weight aldehydes or dialdehydes might be one of lower volatility, with consequent higher efficiency in the reaction with cellulose.

What the Panel Thought About Wash-And-Wear Performance

- CFC's discussion on various aspects of the current trend toward wash-and-wear garments brought home to producers the necessity of—
- Setting up uniform standards of performance
- Improving the finishes so that they will be truly wash-and-wear
- Keeping claims for the finishes well within actual performance probabilities

A six-man panel discussed wash-and-wear at the Chemical-Finishing Conference and came up with a lot of pertinent facts and ideas that will undoubtedly influence producers of such finishes in the future.

Composed of C. D. Grandey of the Federal Trade Commission; Paul Di Bianco and C. W. Murphy of Cluett, Peabody & Co.; George Wham of *Good Housekeeping Magazine*; B. L. Lizak of Montgomery Ward; and H. V. Jennings of Dan River, the panel offered criticism and suggestions based on their experience with the new finishes. Here are some of the ideas:

B. L. Lizak, Montgomery Ward—"Tests should be made on the garment. Most complaints are based on service, not appearance."

C. W. Murphy, Cluett, Peabody & Co.—"A lack of standards of performance makes it difficult to get uniform

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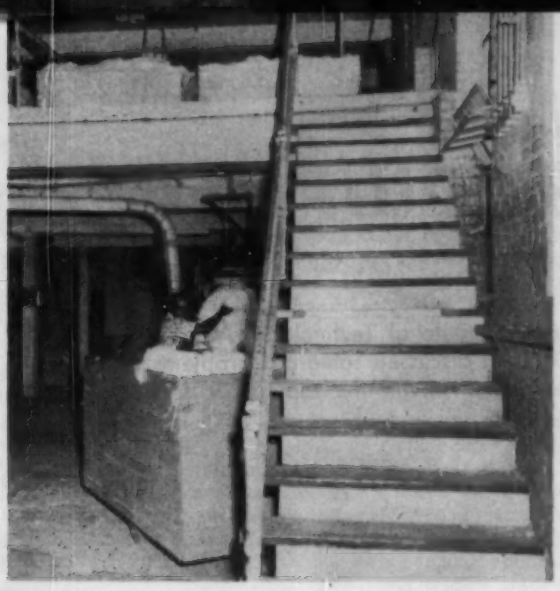
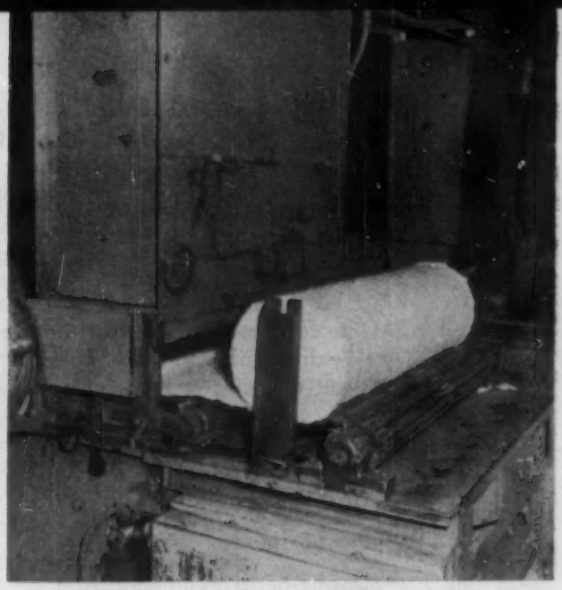


MEZZANINE FLOOR was built to make space for 54-bale mixes. Each bale is placed in a designated spot according to its characteristics.



GAUGE BOXES at the back of the pickers regulate feeding. Off-weight laps, fed here, average less than 0.25% of the total laps produced.

Indian Head Predetermines *COTTON BLENDS for Sheeting*

- Indian Head Mills, Inc., Whitney, S. C., redesigned its opening room and set up careful controls to produce the best possible blends for its sheeting and pillowcases
- Here's how the cotton is blended during opening and picking—

QUALITY COMES AHEAD OF HIGH PRODUCTION at Indian Head Mills, Inc., Whitney, S. C. For this reason, cotton blending receives more than average attention.

To assure good blending, Indian Head redesigned its opening room so that large mixes can be laid down according to a predetermined plan. Careful records are kept of the operating performance of each mix during processing.

Cotton is stored in the warehouse according to Micronaire numbers. Bales are tagged upon arrival with colored cards that indicate staple length, bale weight, grade, mark, and Micronaire number.

Mix Is Predetermined

The mix is determined in the superintendent's office before the cotton is removed from the warehouse. A written order, specifying exactly how many bales with various characteristics are to be laid down, is sent to the opening room.

The opening room has a mezzanine floor built over the production equipment so that the cotton can be laid down directly over the machines. Feeding is through chutes into the blending feeders.

Bales are lifted with a fork lift truck from the warehouse, which adjoins the opening room, to the mezzanine floor. There the cotton is placed in areas marked to correspond with the characteristics of the various bales.

Rust and Tar Are Removed

Bagging and ties are removed; and rust, tar, and oil spots are picked off the sides of the bales. Dirty cotton, as such, is not removed from the bales because the cloth is bleached before it leaves the mill in the form of sheets and pillowcases.

Fifty-four bales of cotton are laid down for mixes of stock to be carded. Feeding is from nine bales to each of the six blending feeders. For combed stock, 36 bales are laid down and feeding is from six bales to each hopper. A 4- to 6-in. slice of cotton is removed from each bale.

The ratio of blending feeders to pickers is six to four. Indian Head plans ultimately to increase this ratio to eight feeders to four pickers, which the management considers to be the perfect proportion of feeders to pickers.

Written Report Is Made

After the cotton is laid down and before feeding begins, a written report showing that the mix is exactly as specified is made to the superintendent.

The stock is followed through the mill as it is made into yarn; and good and bad running periods are plotted for each yarn number made from each mix. The curves plotted from these data are analyzed and compared from time to time.

This system makes it possible to predetermine with considerable accuracy just how any mix is likely to

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Georgia TOE Discusses LOOM PARTS and EQUIPMENT

At the fall meeting, held at the Georgia Institute of Technology, Atlanta, the Textile Operating Executives of Georgia discussed some old problems, as well as new developments, in weaving. Among the topics discussed were—

- **Loom cleaning**
- **Checkstraps and check controls**
- **Plastic shuttles**
- **Dobby-head maintenance**

An election of officers was held during the fall meeting of the Textile Operating Executives of Georgia. Clyde C. Cobb, Riegel Textile Corp., Trion, is the new general chairman; Lloyd K. Williams, Peerless Cotton Mills, Thomaston, vice general chairman; and Herman A. Dickert, Georgia Tech, Atlanta, was re-elected secretary-treasurer.

Ed. J. Hertwig, Porterdale, and J. A. Bradshaw, Atlanta, were elected to serve on the executive committee.

THE WEAVING SECTION OF THE FALL MEETING OF THE TEXTILE OPERATING EXECUTIVES OF GEORGIA was led by B. F. White, Pacolet Mfg. Co. The first question was about overhead loom cleaners. Only two mills reported experience with the cleaners. Their reports were:

Mill S—"An overhead loom blower was tried for two weeks over two lines (36 looms) of 48-in. X-2 looms. The blower made a complete cycle every 2½ mins. The standard relative humidity of 88% was not changed. Fabric woven was Type IV twill.

"The blower did not keep the looms clean because of high humidity and excessive shedding. We were unable to reduce our regular loom cleaning schedule. Undesirable air currents that affected humidity conditions were created by the blower.

"The blower also blew lint into the warps and caused mat-ups and loom stops. We were unable to realize any saving from the overhead blowers."

Mill T—"Our looms were cleaned once every 24 hrs. before we installed the overhead cleaners. Now we blow off with compressed air every six weeks. We have dobby weaves.

"Our relative humidity was 86% and has not been changed. Labor savings are somewhat offset by dirty drop wires."

Compressed Air Used for Cleaning

The next question pertained to loom-cleaning schedules—how often, who does the cleaning, and how.

Mill A—"All our looms are cleaned with compressed air every 24 hrs. The blow-off man also cleans reed caps, lay ends, and loom arches. The batteryhand cleans battery heads at warp-out, and the loomfixers clean thread cutters every 8 hrs."

Mill B—"The loom cleaner blows off the arch and ends of the looms every 8 hrs. Each loom is thoroughly cleaned with compressed air at warp-out, which averages once a week.

"Our weavers clean off reed caps, lay ends, and harnesses at the beginning of each shift. Each weaver keeps one-third of the battery heads clean on his job. He also keeps loose strings out of the thread cutters.

"Our weaves are osnaburgs, ducks, and sheeting. Filling-yarn numbers are 3.25s to 12.50s."

Mill C—"We blow off drop wires and loom fronts every 24 hrs. Weavers clean the reed caps twice a week. The lay ends and arches are cleaned once a week by the harness cleaners.

"Batteryhands clean the battery heads once a week. The thread cutters are cleaned by the weavers each shift.

"We weave drapery, upholstery, headlinings, satins, broken twill, and sheeting."

Mill D—"We blow off arches, loom ends, and front and back of the loom and blow out the drop wires once every 8 hrs. The weavers clean the reed caps each day. The weavers fill their own batteries, and they keep the battery heads and thread cutters clean. We weave chafer fabrics."

Mill K-1—"We clean looms at warp-out. Looms with warps running three weeks or longer are cleaned at each warp-out. Looms with warps running less than three weeks are cleaned at every second warp-out. Drop wires are blown out every 24 hrs.

"The batteryhand cleans the battery heads once a week. Thread cutters are cleaned by the loomfixers every 24 hrs. We weave man-made-fiber blends."

Mill S—"All our looms are blown off every 24 hrs. The blow-off man cleans arches and lay ends; the smash hands clean reed caps every 24 hrs.

"The blow-off men clean the batteries at warp-out. The loomfixer cleans loose threads from the thread cutters at the beginning of each shift. Each loom is cleaned with compressed air at warp-out.

"We weave drills, twills, sheeting, and gabardines."

No Report on Vacuum Cleaning

There were no replies to a question about the use of a new vacuum cleaner for looms.

Three mills replied to questions about weaving Type IV twills. They were:

Mill G—"We allow 10 major defects per 100 yds. of Type IV twill. Our looms are equipped with center forks. We maintain about 85% r.h. with no week-end control."

Mill N—"We allow not more than one mispick per 100 yds. on center-fork looms. Our r.h. standard is 85%, and we don't try to control it over the week end. We start the humidity system and have it reach 85% about 2 hrs. before starting up after the week-end shutdown."

Mill S—"We allow one mispick per 25 yds. of Type IV twill on side-fork looms. Our standard relative humidity is 88%, and we maintain 76 to 80% over the week end."

Check Control Has Had Limited Use

The next question was: "What has been your experience with the new check control as compared to the conventional checkstrap?"

Mill 1—"We have four looms running with the new Page check control. The control is very satisfactory when it is put on and set right."

Mill S—"We have a Page control checkstrap test now in progress on two looms. One is a 40-in. X-2 operating at 180 ppm., and the other is a 48-in. X-2 at 172 ppm.

"No adjustments have been made to these checks in the 12 weeks they have been operating. We have not had enough experience to give the life of the straps. They appear to be far superior to conventional straps for Monday morning start-ups."

A question about endless checkstraps drew a number of answers:

Mill I—"We have 87 looms equipped with endless checkstraps. No accurate comparison can be made because we have not used the conventional straps on these 60-in. looms. We believe the endless checkstraps have longer life than conventional straps."

Mill K-2—"We have had 12 X-2 looms of 50-in. width equipped with endless checkstraps for about 3 years. We have recently equipped 143 more 50- and 60-in. X-2 looms with these checkstraps.

"Our experience has been that the endless straps have almost twice the life of conventional straps, but they do not improve loom efficiency."

Mill M—"We have been using endless checkstraps on our X-2 looms for several years and find that they last twice as long as conventional checkstraps."

Mill N—"We like endless checkstraps on X-2 looms. We prefer the endless over the conventional strap because it is much easier to keep the shuttle boxed, and loom efficiency is higher."

Mill P—"Endless checkstraps run about 3½ times longer than conventional straps. Even with higher initial cost, this added service reduces checkstrap cost by about 50%. The average life of our endless checkstraps is about 3,200 hours."

Mill T—"Endless checkstraps have not proved satisfactory. They have longer life, but it is due to looms not running as well as with conventional checkstraps. Loomfixers do not like endless checkstraps; and until they do, the straps will not be worth while."

Only one mill reported having experience with loop checkstraps on multiple-box looms. The mill has not noted any change in efficiency and quality since it has been using the loop straps on 58-in. C-5 looms.

A number of mills reported favorably of tests made with plastic shuttles.

Mill K-1—"Average life of our dogwood shuttles is 1,400 hrs. Based on an experiment with 25 shuttles, we averaged 4,000 hrs. with plastic shuttles. But the cost of plastic shuttles is about twice that of dogwood shuttles."

Mill N—"We average about 5,000 loom hours with bonded-and molded-plastic shuttles compared to only about 1,000 loom hours for dogwood shuttles.

"Our cost per 1,000 loom hours is $1.39 for the molded-plastic shuttle, $1.20 for the bonded-plastic shuttle, and $2.16 for the regular dogwood shuttle."

Mill S—"A small-scale test has been completed on 25 molded-plastic shuttles with good results. We had a 73% increase in shuttle life, and 8% of the shuttles are still running after 6,000 loom hours of service."

Here's How To Control Selvages

The next question was about the control of selvages.

Mill D—"The following things should be checked to remedy slack selvages:

1. Have the forward motion of the lay the same for each side.
2. Have the pressure of the cloth roll against the take-up roll the same at each end.
3. Use a straight cloth roll and good cloth-roll bearings.
4. Have the take-up roll properly set in good bearings.

"For tight selvages, have good temples that will hold cloth out to proper tension. Avoid bad take-up fillet, and experiment with different selvage draws."

Mill G—"Keep the take-up roll level. See that gears and racks are kept clean and don't bind. Keep spring tension equal on both ends."

Mill N—"We recommend the following for slack selvages:

1. Check the loom beam to see that selvage ends are not too close to the beam head and that they are not higher than the ends in the body of the warp.
2. Check the cloth roll racks. They should go up the same distance at both ends.
3. Eliminate crooked beam heads.
4. Have selvage ends heavier than those in the body of the warp."

Mill S—"We have found that slack selvages can be caused by worn take-up-roll covering or by improper alignment of cloth traverse, stop motion, whiproll, and take-up roll. Weak traverse springs or traverse gears choked with waste will also cause trouble.

"For tight selvages, try different combinations of selvages, both tape and plain. Also try different ways of drawing in harness and reed. We have had good success with additional take-up-roll cover directly under the selvage. We also use a filling catcher to help prevent the piling up of filling on the outside of the selvage."

Dobbies Should Be Kept Clean

The last question taken up at the session was about the maintenance of dobby heads.

Mill J—"We have no set schedule; but when necessary we strip the heads down completely, clean parts thoroughly with a solvent, and then replace. We soak dobby pattern bars for about two weeks in linseed oil before using them."

Mill K-1—"We blow dobby heads off with compressed air at warp-out, using mineral spirits as a solvent. We take each head down and clean it completely once a year.

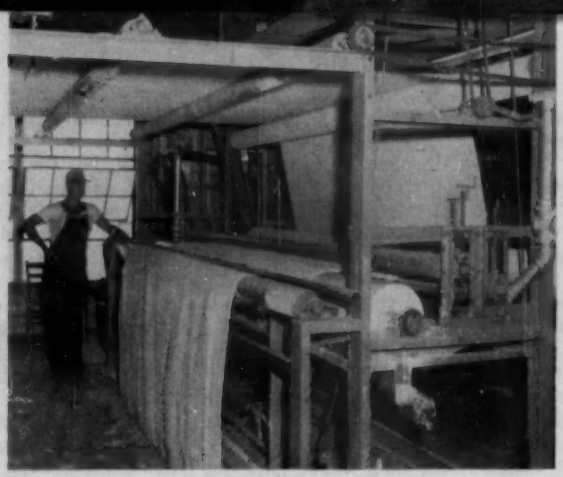
"We check each head at warp-out, replace worn parts, and adjust settings as needed.

"We have not found a good method for preserving dobby bars. Shellac seems to cause the bars to dry out and burst. Linseed oil softens the bars and causes the pegs to fall out."

Mill N—"Our dobby heads are cleaned at warp-out with a loom brush. We do not blow off with compressed air at any time. The warps run about two weeks.

"The loomfixers check the heads at warp-out. They do the oiling and greasing and use loom oil for everything except dobby knives and knife channels. For these parts we use a grease similar to Arctic No. 2, to which has been added about two tablespoons of powdered graphite for each gallon of grease."

VELVETONE uses modern electrically controlled tufting machines to produce high- and low-pile effects. The pattern wheel (arrow) controls the length of pile of each tuft in the rug.



BACKING, DRYING, AND CURING the rugs is done on this range built by Dalton Sheet Metal Co. The dryer is a three-pass combination of tenter, belt conveyor, and roller conveyor.

How Velvetone Makes and Finishes TUFTED RUGS

Velvetone Mills, Inc., Calhoun, Ga., has an integrated operation for the manufacture and finishing of tufted rugs. The plant's production potential of 25,000 lbs. per day is aided by—

- **Clean, well-lighted working areas**
- **Modern manufacturing and finishing equipment**

A PLANT LAYOUT THAT MAKES FOR EFFICIENT OPERATION, and well-balanced dyeing and finishing equipment help Velvetone Mills, Inc., keep busy in a highly competitive business.

The plant's raw materials consist of cotton rug yarns, backing duck, and the dyes and chemicals necessary to produce a finished rug.

The primary rug yarns used are cotton, but the mill handles some man-made-fiber yarn. The yarn numbers used most range between 2s and 8s; and a good deal of 8/10s and other plied yarns are used, depending on the weight and style of rug.

The backing duck used at the plant is either 6- or 8-oz. duck; a few styles require a 10-oz. backing.

Velvetone makes both loop and cut-pile rugs. The plant's primary manufacturing equipment is one 12-ft. machine, five 9-ft. machines, and two 60-in. machines.

As is usual in the tufted-rug business, the machine widths refer to the finished width of the rug. An allowance of about 10% must be made for shrinkage that occurs during dyeing; so the rugs are actually based on a proportionately wider backing.

Velvetone sets up its wide machines to produce smaller throw or scatter rugs by leaving out a pile yarn at suitable intervals across the face of the fabric. The wide rugs are split along the line of the omitted yarn after they have been backed with latex.

The eight tufting machines are rated at a total of 25,000 lbs. of tufted rugs per day.

Tufts Locked Before Dyeing

After the rugs have been tufted, they are led up through a slot in the ceiling of the manufacturing area and the back is coated on a roller-coating machine hooked up in tandem with a tenter dryer and curing unit.

The roller coater is set up so that the coating roll moves in the same direction as the rug but at two to three times the speed. Velvetone uses a prepared backing compound that works well on its type of fabric.

When the fabric leaves the coater, it is guided up to a pin tenter that travels through an insulated dryer housing 40 ft. long. The rugs leave the tenter at the far end and are dropped on a metal conveyor belt for a return pass through the dryer; then the rugs make a final trip to the delivery end supported on rollers.

The coating and drying equipment, made by Dalton Sheet Metal Co., is a recent addition to Velvetone's equipment. Operating temperatures are automatically controlled at 325 to 350° F.

The conveyor belt is reversible; so narrow strips or individual rugs can be put through the dryer without using the tenter.

Two gas-fired heating units carry two fans each that drive the heated air through ducts to the rug surfaces. Velvetone's production on this unit is from 7 to 10 yds. per min., depending on the weight of the fabric being processed.

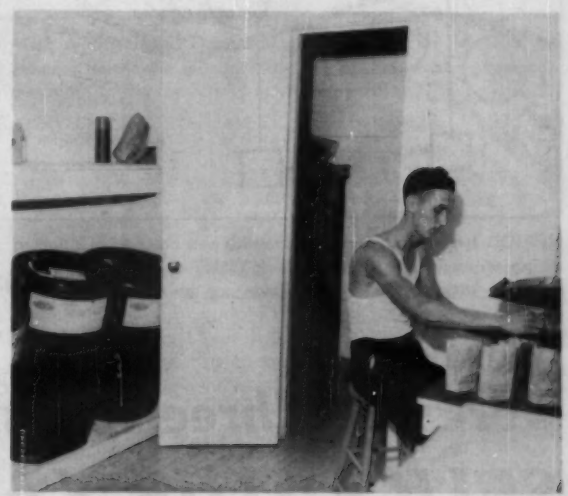
As the wide rugs leave the coating-drying range, they are split along the

CONTINUED ON PAGE 149

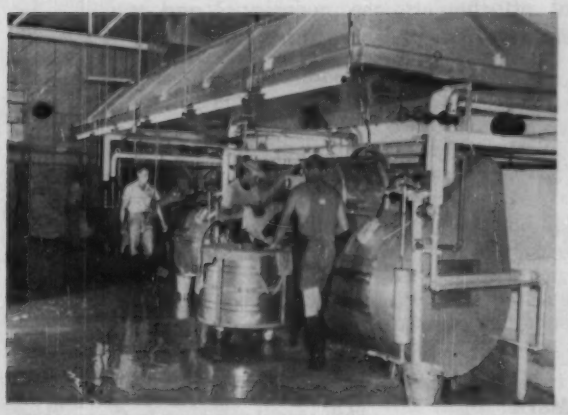
RUGS ARE CUT, after the backing is applied, on a table equipped with an adjustable-length guide and a circular knife that runs on a track mounted flush with the table.

APPLYING FRINGE to small throw rugs, this operator uses a machine developed at the plant that will produce a 1½-in. loop and sew it rapidly to the edge of the rug.

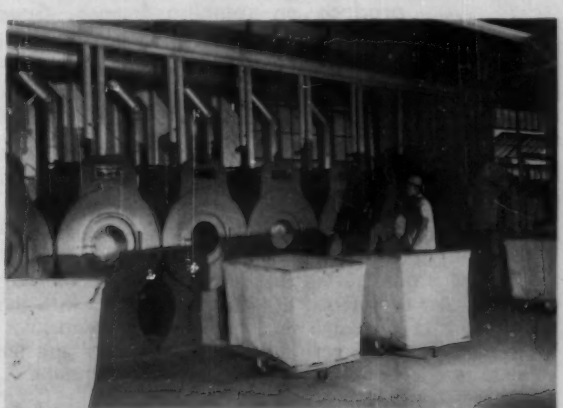
TWO-WAY CONVEYOR brings rugs down from the gray room; and after they are dyed and dried, the conveyor is reversed to take the rugs back to the inspecting and packing areas.



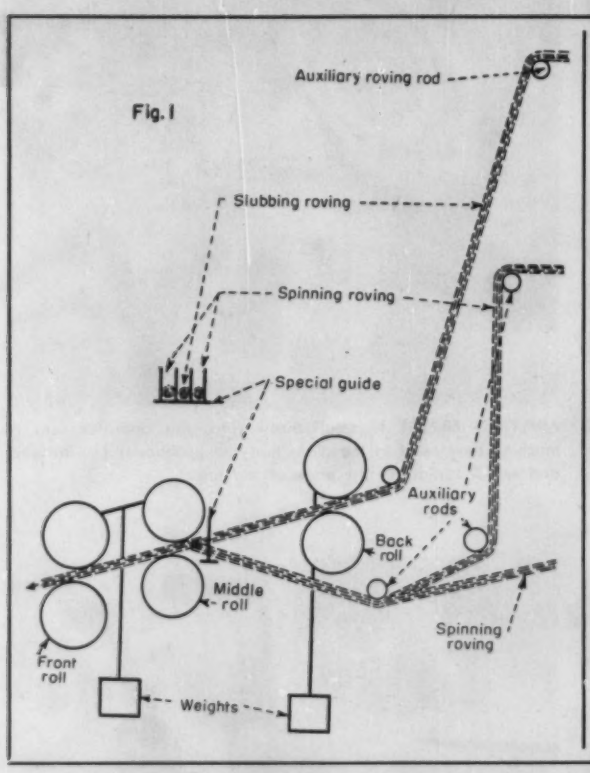
SPOTLESS COLOR SHOP at this plant features white paint, a vinyl-tile floor, and neatly arrayed drums of supplies. Color is weighed into paper bags and is dissolved outside the color shop.



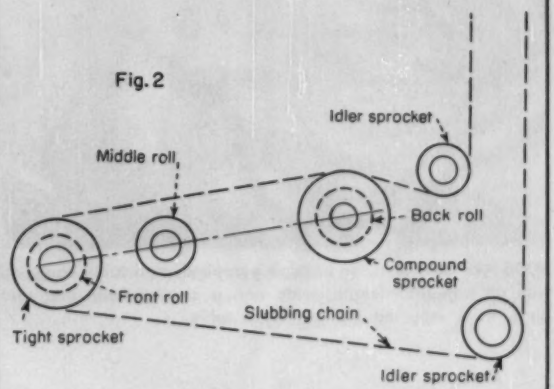
TWO 350-LB. STAINLESS-STEEL laundry wheels and a paddle machine are the primary producers in the dyehouse. Steam and heat are exhausted by fans in the stainless-steel hood.



DYED RUGS are dried in this battery of Huebsch steam-heated dryers. The tumbling action of this type of dryer is ideally suited to fluffing up the pile of the rugs.



METHOD 1 requires a special guide that puts one end of spinning roving on each side of the slubbing roving as the three rovings enter the middle rolls. A tube guide can be used if preferred.



BACK ROLL for Method 1 attachment is driven by a chain that runs from a tight sprocket on the front roll to a compound sprocket on the back roll. The back roll is disconnected.

Here Are Three Ways To Spin SPLICE-SLUB YARN

• Splice-slub yarn is one of the most difficult types of novelty yarn to produce on spinning frames. Special attachments are necessary, and spinning frames have to be altered considerably. Here are three methods that have been used successfully—

By GEORGE B. PEELER

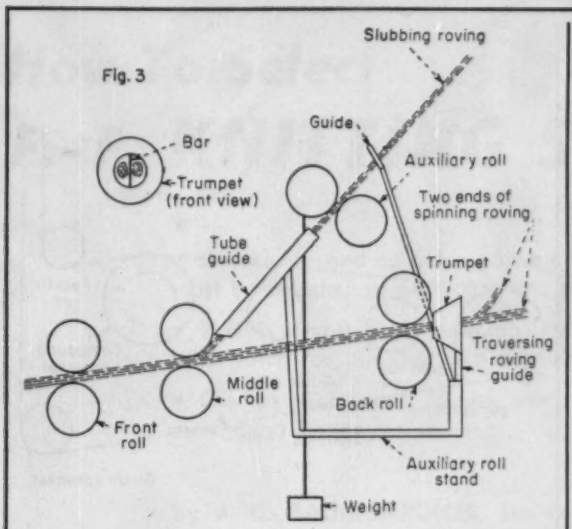
SPUN SPLICE-SLUB YARN is made by splicing into regular yarn a slub made from a third roving that has a different color or different dye index. For example, a splice-slub yarn might be regular white yarn with a red slub spliced into it or it might be yarn spun from rayon roving with an acetate slub spliced into it.

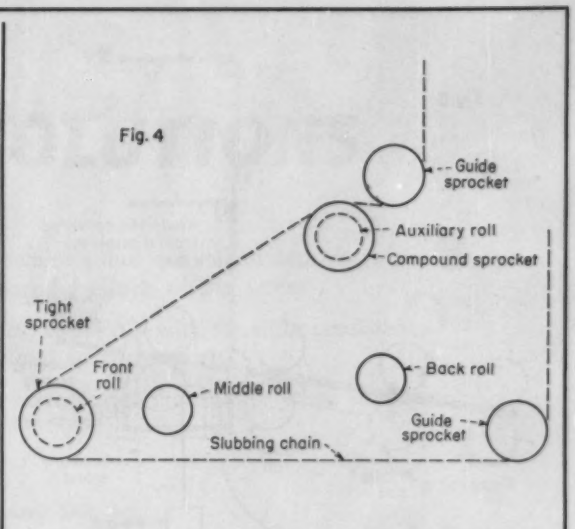
The latter combination gives a contrasting color effect when the yarn is cross dyed. The slub makes a complete break from the slubbing roving and is held in the regular yarn only by the intermingling and entwining of its fibers with those of the base yarn. There is no color connection between one slub and another; they are entirely separate.

Yarn Is Hard To Make

A spun splice-slub yarn is not easy to make. To produce this yarn, major alterations of the drafting element, and in some instances of the spinning frame itself, are necessary. Since it is so hard to make, spun splice-slub yarn is not common and is expensive to produce.

To make spun splice-slub yarn of good quality requires constant attention through the spinning operation with special reference to the mechanical motions that are added to the regular spinning frame. It is difficult to make this yarn without the services





METHOD 2 calls for substantial frame alteration, but the gear train of the drafting system does not have to be changed. All elements of the slubbing attachment must be carefully synchronized.

ROLL ARRANGEMENT for Method 2 includes an auxiliary roll mounted above the regular rolls to deliver the slubbing roving in a straight line to the bite of the middle rolls.

of someone with previous experience. Also, an expert mechanic, a good machine shop, and the best of supervision are needed.

There are various methods of making spun splice-slub yarn; three are discussed here. The techniques described are designated as Methods 1, 2, and 3. Equipment necessary to make the yarn varies according to the method used.

Method 1 Is Used for Small Lots

Method 1 is the simplest and requires fewest machine alterations. This method may not be as satisfactory as the other two, but it is workable and can be used for making small lots and test yarns.

Fig. 1 shows how the spinning roving passes under the back roll and between the middle rolls (or aprons) after it passes over and under auxiliary roving rods. This roving also passes through a special slubbing guide before it enters the bite of the middle rolls.

This special guide permits the slub from the slubbing roving to enter the bite of the middle rolls between the two ends of the spinning roving and gives control over the binding and intermingling of the slub fibers with those of the spinning roving. A tube guide can be used instead of the special guide shown here.

This tube is usually made from very fine-gauge metal so as not to interfere with or take up too much space between the two spinning rovings. The tube guide in some instances gives better control and permits the slub from the slubbing roving to be delivered straighter into the bite of the middle rolls.

Extra Weight Is Required

Extra weight is required on all three rolls when Method 1 is used. The extra weight can be added as shown in Fig. 1. An auxiliary roving rod is needed for the slubbing roving. If every spindle on the frame is used for spinning roving, an auxiliary creel is necessary to hold the slubbing roving.

In spinning splice-slub yarn by this method, the back roll is disconnected from the drafting gear train. Drive for the back roll is obtained from a chain and sprockets fastened to the foot end of the front and back bottom rolls, as illustrated in Fig. 2.

The tight sprocket is on the foot end of the front roll, and a compound sprocket (two large tight sprockets with a small loose sprocket between them) is fastened to the foot end of the back roll. The small loose sprocket between the two tight compound sprockets gives the back roll an intermittent motion, since the roll turns only when the slubbing pins of the chain strike or come in contact with the compound sprocket. The slub enters the yarn according to the way the chain is pegged.

An idler sprocket helps determine the length of the slub delivered from the back roll. The length of this slub varies according to the depth of the chain in the compound sprocket, which is regulated by raising or lowering the top sprocket. The lower guide or idler sprocket keeps the chain straight.

The middle roll receives its motion from the front roll, which action requires alterations of the drafting gear train. The draft between the middle and front roll has to be worked out by the individual mill. These changes vary according to the type of spinning frame used, but a good mechanic with proper supervision can do this job without difficulty.

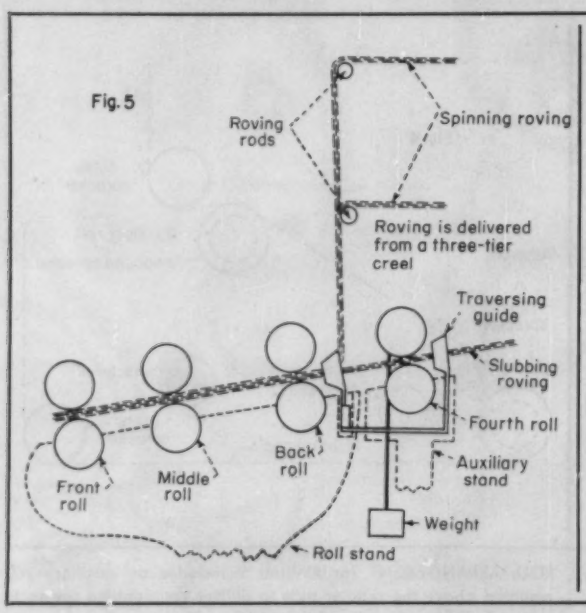
With Method 1, it is difficult to use the traversing roving guide. Usually, it is better to disconnect this part and position it so that the slubbing roving and the spinning roving enter the bite of the middle roll with the slubbing roving between the two ends of the spinning roving. When the traversing guide is not used, the roving runs in the same place on the rolls at all times, and the rolls have to be changed frequently.

Draft is limited to that which can be produced successfully between the front and middle roll, and generally it is very short.

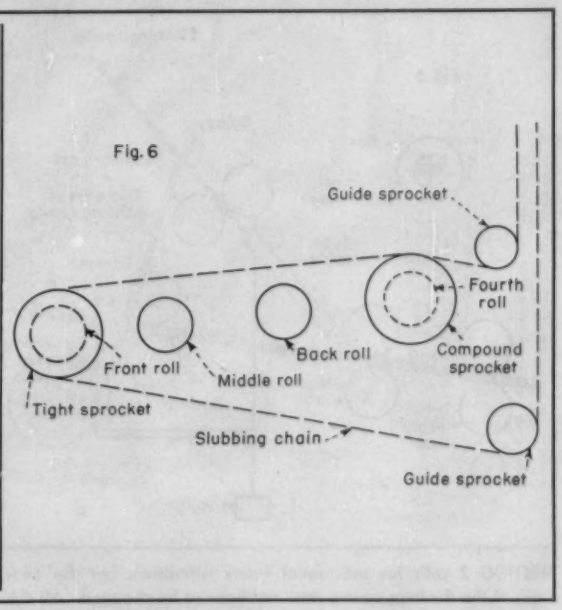
Soft Twist Is Important

Soft-twist roving should be used. Twist in the spinning roving should be as low and soft as possible to facilitate drafting. This condition is necessary because only two lines of rolls are used.

Low twist also should be used for the slubbing roving; however, the intermittent or jerking motion necessary to feed the slubs into the yarn usually necessitates a higher twist in



METHOD 3 makes use of a fourth roll back of the regular traversing guide trumpet and requires an auxiliary roll stand. The slubbing roving is creeled on the bottom tier.



DRAFTING ELEMENT for Method 3 does not have to be altered. The fourth roll controls and delivers the slubbing roving into the bite of the regular back rolls.

this roving than in the regular spinning rovings. The most practical twist can be determined only by trial and error.

Method 2 Requires Frame Changes

Method 2 for making splice-slub yarn is illustrated in Fig. 3. While this method has advantages over the first method, it requires extensive alterations of the spinning frame and some auxiliary equipment. The alterations necessary for this change-over may not be practical for the plant's machine shop to handle. The expense also will be greater than for Method 1.

The roll arrangement for Method 2 is shown in Fig. 3. This method requires more cleaning, and the equipment is more difficult to clean because of the arrangement of the slubbing or auxiliary roll.

The front roll has a tight sprocket attached, as shown in Fig. 4. The auxiliary roll is mounted at an angle so that the slubbing roving is delivered to the bite of the middle roll in as straight a line as possible.

Slub Enters Middle Rolls

A tube guide is arranged to allow the slub to enter the bite of the middle roll between the two spinning rovings. This setup permits the slub to be spun into the yarn and gives better intermingling of the slub fibers with those of the yarn fibers. An auxiliary or slubbing-roving stand and guide, shown in Fig. 3, are mounted on top of the regular roll stand.

The tube guide permits the traversing roving guide to be used, and the spinning roving traverses across the face of the roll. Roving from the tube guide must be synchronized with that from the traversing roving guide. Synchronization is done by putting one strand of spinning roving on the right side of the tube-guide stand and the other on the left side.

The trumpet on the traversing roving guide has a bar across the small end that keeps the two ends of the double roving separated as they feed into the bite of the back rolls. This arrangement makes it easy to separate the two spinning rovings between the back and the middle rolls and allows the slub to enter the middle roll between the spinning rovings.

Roll Stands Must Be Level

The auxiliary roll stand can be bolted or welded to the regular roll stand, or it can be fastened to the cap bars. Care must be taken to plumb, level, and align the auxiliary stand. Stands out of line mean broken roll necks and poor quality yarn.

The auxiliary rolls used for Method 2, as shown in Fig. 4, are driven the same way as for Method 1. That is, the tight sprocket is fastened to the foot end of the front roll and a compound or double sprocket is used on the foot end of the auxiliary roll. A chain drive and idler are used.

Method 2 permits the use of all regular rolls for drafting the spinning roving. Longer draft, more twist in roving, and a more-satisfactory yarn result from the use of Method 2 as compared with the first method; and this method is better suited for the manufacture of large quantities of yarn.

With Method 2, it is not necessary to alter the gear train of the drafting element. It also is possible to use the traversing roving guide behind the back roll, which prevents grooved rolls and gives longer roll life. The tube guide, the trumpets of the traversing roving guide, and the auxiliary rolls must all be synchronized so that the spinning and slubbing roving will stay in proper position.

The auxiliary rolls are dead weighted with a hook-and-weight arrangement. The amount of weight is determined by the size of the roving, the twist, the angle of the auxiliary rolls, and other factors. Weight should be varied until the best results are obtained.

Method 3 Uses a Fourth Roll

Method 3 for spinning splice-slub yarn is illustrated in Figs. 5 and 6. The diagrams show how the fourth roll is added behind the back roll of the regular drafting element. The fourth roll controls and delivers the slubbing roving into the bite of the back roll.

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How To Select F.-F. KNITTING SOLUTIONS

- If water is used on nylon yarns, chemicals that are mixed with the water must be selected to neutralize the harmful effects of the water
- If oil is used in the moistening boxes, select oils with the right consistency and watch for oils that are detrimental to brass parts
- Oil has been found to give more advantages than water when used in moistening boxes

By J. C. BAUMGARDNER, Lee Hosiery Mill, Inc.

MANY DIFFERENT SOLUTIONS are used in the moistening boxes of today's full-fashioned-hosiery knitting machines. Some solutions give better results under certain conditions, but none seem to be superior under all circumstances.

Some mills use water with no added chemicals. Distilled water or deionized water is used in some mills. Boiler distillate with added chemicals is also used. Other mills use oil to lubricate knitting yarns.

When you select a chemical to be mixed with the water, make sure that the chemical is not detrimental to the sinker heads and knitting elements. Such chemicals decrease the life of these parts.

Water Alone Is Harmful

Water used alone is harmful to steel and brass, and the chemical selected should neutralize the effect of the water on the steel and brass parts. When the wrong solution is used, the damage is sometimes not readily noticeable for a year or two. Not much, other than an expensive reconditioning job, can be done to rectify the damage.

In all cases where water is used in the moistening boxes, oil must be applied to the knitting elements several times each day. A regular cleaning program must be worked out to insure efficient operation of the machine and the production of quality fabric.

Wash out the knitting elements daily. Follow this treatment with an application of needle oil. Flush the needles, sinkers, and knockover bits with a cleaning solution each week; and blow them out with compressed air.

The cleaning solution may be a chemical that is used with water or used alone. These chemicals should be selected with care because some such chemicals are harmful to knitting elements.

Use a Cleaning Program

Adopt a weekly cleaning program for all eyelets, tension rings, and other devices that contact the yarn. Such a program will give better stitch formation, aid length control, and prevent tight sides.

Moistening boxes and the entire top of the knitting machine should be thoroughly cleaned at three-month intervals. This cleaning will keep gum and rust from building up on such parts as carrier rods and narrowing rods and will reduce wear and insure good operation.

Many mills switched to oil as a wetting agent when unthrown monofilament nylons came along. Various wicking arrangements are used. Some mills have, however, abandoned this method in favor of water.

Unthrown filament yarns are now often used for welt and foot yarns. These yarns are pliable and contain no size; so they don't have to be run through water to knit a good stitch.

Use Little Tension on Yarn

Unsized nylon yarns can be run with oil successfully to produce top-quality stockings. As little tension as possible should be used on the yarn when it is oiled, but the tension must be carefully controlled.

Use the same care in selecting oils for moistening boxes as you would in selecting chemicals where water is used as the lubricating medium. Some compounded oils are detrimental to brass. Some oils produce a deposit on the knitting elements that causes roughness and faulty stockings.

Oil for moistening boxes must be of the right consistency so that just enough oil will be picked up by the yarn to lubricate it and yet not enough to be thrown over the machine and the friction rods to cause trouble.

Daily cleaning of the knitting elements should be continued when the oil technique is adopted. Flushing and blowing with compressed air do not have to be done as frequently as when water is used.

Parts Remain Cleaner

When oil is used for knitting, all yarn eyelets, tension devices, and snappers will remain clean for a long period of time. The entire knitting machine is kept cleaner, and cleaning costs are reduced.

The life of carrier tubes, eyelets, tension parts, and loop-forming elements is greatly increased. The narrowing rods and carrier rods remain rust-free and clean. The machine needs to be cleaned only once a year when oil is used for lubricating.

Needles and sinkers are kept smooth and clean, and cuts from sinker roughness are eliminated. The running temperature of the sinker heads is lower because of less friction.

Some hosiery men say that lengths cannot be controlled if wicks are used to oil the yarn. However, if the right oil and the right wicking arrangements are used, lengths are easier to control.

We've found that the oil method of lubricating yarn gives better production and more first-quality stockings than other methods. There are fewer seconds with a substantial saving in costs when the oil system is used.

MAINTENANCE MEN Get the Best From Old and New Equipment

Georgia mill men are getting the best results from their old equipment and are evaluating newer equipment for possible future use. Maintenance subjects discussed at the fall meeting of TOE are—

- **Humidifier and duct care**
- **Rapid-start upward-component lamps**
- **Lubricating and cleaning electric motors**
- **Preventing condensation in weave rooms**

A LARGE PART OF THE FALL MEETING of the Textile Operating Executives of Georgia held at Georgia Tech was spent in discussing maintenance that is commonly under the supervision of the mill engineer or master mechanic.

Ways of maintaining humidifying systems were explained by men from 19 mills. Methods used by four typical mills are:

Mill A—"We have a Parks-Cramer humidifier system in carding and spinning and a Bahnson system in weaving.

"To stop heads from leaking, we clean the rim of the humidifier with emery cloth. We haven't been able to stop condensation from forming in compressed-air lines.

"Lines are treated with Rustang to prevent rust. Six pints of Rustang are added each day to a container, which is regulated to drip the chemical into the lines for 24 hrs. Heads are cleaned once per shift."

Charts Are Used Each Day

Mill B—"We have Bahnson Humiduct units and an American Moistening system.

"Humidifier systems are checked by a maintenance chart made for daily and weekly checks. The chart also lists a monthly and semiyearly checkup.

"To keep Bahnson ducts from leaking, we keep all openings clean; and to stop leaks in the heads, we keep the disks clean.

"Traps and filters eliminate condensation in our compressed-air lines.

"Strainers, kept clean and in place, keep our humidifiers clean. We seldom have a stopped-up line. The best maintenance is cleanliness.

"The pH of our water is 8.4 We use one pint of Fluf-fo in our system every 24 hrs."

Heads Are Rebuilt Once a Year

Mill C—"We have American Moistening atomizers. Two men on the first shift and one on the second maintain our humidification system throughout the mill.

"These men have a regular schedule and in addition answer all calls for repairs. Each head is disassembled, cleaned, and rebuilt once a year by schedule; this work is also done between schedules if necessary.

"Repair calls on the third shift are made by machine-shop employees.

"The preventive-maintenance schedule includes draining water from all air lines each day to keep atomizers from leaking. This schedule may be varied by weather conditions.

Aftercoolers Reduce Condensation

"When heads are leaking, we drain the lines and clean lint from the atomizers. If the leaks continue, the heads are disassembled, cleaned, and rebuilt.

"To prevent condensation in air lines, we use aftercoolers and traps; but this maintenance has not eliminated condensation completely. At present, we are trying a different type of trap.

"We have only a little trouble with rust. The pH of our water is 7.5 to 7.8. We do not use a rust preventive."

Mill D—"We have atomizers and ducts; in some departments, we have window fans.

Schedules Assure Constant Care

"A maintenance crew repairs our humidifiers, and the crew works by schedule. All heads, controls, and other elements are checked at specific dates.

"If a head is leaking from a loose connection, we try to stop the leak without taking the head from the line; if removal is necessary, we put in a new or rebuilt head. Then the defective head is repaired.

"We prevent condensation in air lines with aftercoolers and filters with drip legs.

"We clean our water boxes once each week. We clean our lines as often as possible, and this cleaning is almost continuous. Chemicals have not helped.

"Our water has 7.6 pH. We have tried rust preventives, but they don't help."

Mills Evaluate Rapid-Start Lamps

Six mills are using rapid-start fluorescent lamps to some degree; in most mills, the installations are experimental. But results in all mills are satisfactory.

Only three mills are using fluorescent fixtures with upward component. Two mills think these fixtures will be satisfactory in mill use. The third mill has used them only in its office and thinks the upward component will not prove to be satisfactory in the mill.

Another mill has not used upward component but plans to buy them in the future.

Five Mills Check Foot-Candles

Only five mills have records of their foot-candles on gray and colored goods. The foot-candles range from 15 to 35 in spinning and from 15 to 75 in weaving.

Reports by four mills on their fluorescent-lamp maintenance methods are:

Mill A—"We have not used rapid-start lamps but will probably use them in the future.

"For gray goods, we think 35 ft.-cs.

in spinning and 60 to 75 ft.-cs. in weaving are adequate.

"We use fixtures and lamps made by several manufacturers: Sylvania, Mitchell, Benjamin Electric, Westinghouse, Wheeler, and Day-Brite.

"In spinning, some of our fixtures are at right angles to the frames and some are parallel. Fixtures in weaving are parallel with looms.

"We do not have upward-component fixtures but will go to them in the future."

Scaffold Aids Lamp Cleaning

Mill B—"We do not have rapid-start lamps. A foot-candle level of 26 in our weave room is apparently adequate.

"In our weave room, we have three-lamp 40-w. fixtures parallel with the looms and centered with the weavers' alleys.

"We haven't had any experience with slotted-type fixtures.

"Lights are checked each week for burn-outs by a night-shift electrician, and burned-out lamps are replaced. Each department of the mill cleans its own lamps from a rolling scaffold."

Mill C—"We have not used enough rapid-start fixtures to have accurate records on their performance. On both gray and colored goods, 50 ft.-cs. are adequate.

"Our fixtures are Sylvania HF-100. They are set at right angles to looms and parallel with spinning frames.

"Our experience with upward-component lamps has been good. This lamp reduces the light contrast.

"In most of our departments, lamps are cleaned daily and replaced as replacements are needed. We are experimenting with replacing lamps in groups, but our experience is too limited to give any accurate results."

Mill D—"Rapid-start fluorescent fixtures have given good service. We have them throughout our weave rooms. We have no accurate records on the foot-candle level in our production departments.

"We have both continuous-row fixtures and individually hung fixtures with both open and closed ends. We use both 8-ft. and 4-ft. fixtures.

"Our fixtures are at right angles to the spinning frames. We do not have any upward-component fixtures."

Ball-Bearing Motors Are Greased

Fourteen mills have schedules for maintaining ball-bearing motors in carding, drawing, roving, and spinning. In most mills, starters are cleaned every six months. Only one mill has concrete floors in the weave room; and in this mill, loom starters are mounted to the floor with expansion shields and lag screws. But the mill would rather have the starters on mounting pads. Reports by mills on motor and starter maintenance are:

Mill A—"Cards have individual drives, and motors are 1½-hp. totally enclosed, nonventilated. They are not cleaned but are lubricated every six months.

"Our drawing-frame motors are totally enclosed nonventilated motors with V-belts. We do not clean them, and we pressure-lubricate them every 2½ to 3 years.

"Roving-frame motors are lint-free motors, and they are blown off every two weeks. They are prepacked with grease every five years.

"Motor controls in carding are not given special cleaning and are checked each year. Motor controls in spinning do not receive special cleaning but are checked every six months."

Mill B—"Ball-bearing motors in drawing, roving, and spinning are greased every six months. They are blown off weekly. The motors are greased by machine-shop employees. Each mill department has cleaning employees to blow off the motors.

"Ball-bearing motors for cards are at the building ceiling, and we have drive shafts for all cards. The motors are greased every six months and blown out every two weeks. Shop employees do this work. We clean all starters twice each year."

Mill C—"Motors for carding, drawing, roving, and spinning are torn down and repacked with grease every three to four years. Motors are cleaned with compressed air.

"All open-type motors are blown out every day; semienclosed motors are cleaned twice each week; totally enclosed motors are cleaned once each week. Starters are cleaned every three months."

Mill D—"We blow out all motors once a week. Ball-bearing motors are lubricated once a year. Starters are cleaned every six months."

Floors Are Given Attention

Eight mills reported on methods of keeping floors in good condition. Two mills scrub their floors, and six mills use the Tennant method. Reports of four mills are:

Mill A—"We scrub the floors in carding and spinning. We have a small area in our finishing department where we use a floor finish."

Mill B—"We have not applied any type of finish to our floors. We scrub the floors each week and repair bad conditions as they appear."

Mill C—"We refinish our floors completely once each year. We polish the floors with steel wool and apply a new seal.

"Where excessive wear is present, we sand, seal, polish with steel wool, and seal again. We use a floor tone for burnishing about 12 to 15 times per year to protect the Tennant seal. Our finishing cost per 1,000 sq. ft. is approximately $10."

Mill D—"Floors are buffed with steel wool once every two months until they have been buffed four times. At the fifth buffing, a light coat of heavy finish (Tennant No. 100 Gloss) is applied.

"Areas under machines are painted once a year with gray lacquer. The cost for completely sanding and finishing floors and painting under machines is $100.30 per 1,000 sq. ft."

Condensation Is a Major Problem

Thirteen mills reported that condensation on weave-room walls is a major problem. Several preventive methods have been tried, and many of them have reduced condensation. But no method has completely corrected the condition. Reports from four mills are:

Mill A—"We have had trouble with condensation on our weave-room windows. We have not stopped the condensation, and we have put in small troughs with drains at the base of all walls.

"The troughs keep most of the water off the floors. We have trouble with lint collecting in the drains and plugging them even though they are cleaned frequently."

Mill B—"Our walls are 21 ins. thick, and the inside course is glazed tile. In certain weather, condensate wets the floor.

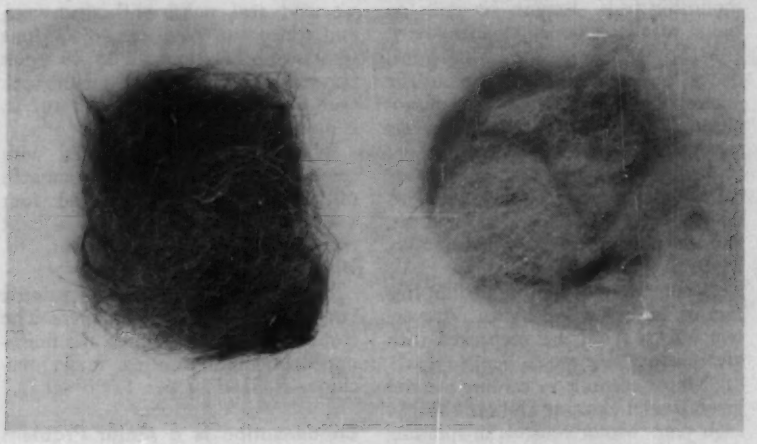
"We installed a 1-in. steam line on the wall about 1 ft. from the floor, and it eliminated most of the condensation.

"Windows are glare-reducing glass ⅛ in. thick. Humidity conditions are 80 to 82° F. and 80 to 82% r.h."

Mill C—"To stop condensation in our weave room with a saw-toothed roof, we had to remove all windows and brickwork between concrete columns. Then we put in two brick walls with a space between them.

"Steam radiators were installed in the hollow space. Steam is used when the weather is cool enough to form condensate on the walls. Temperature is 80 to 84° F.; relative humidity is 84 to 88%."

Mill D—"We have some condensation in our weave room, but it isn't a major problem with our present setup. Our windows have been replaced with a layer of foam-glass insulation between an inner and outer layer of brick."



BLEACHING ANIMAL HAIR produces the light-colored product shown at the right from the dark mixture of hair at the left.

BLEACHING Upgrades Animal Hair

Ray J. Stecker Co., Salem, Mass., specializes in processing animal hair of all types. The market for these fibers has been greatly increased by a bleaching process that—

- **Produces a level, creamy color**
- **Retains the desirable characteristics of the fiber**

THE ROUGH AND MULTICOLORED HAIR from cattle and wild goats used to wind up in boot felts, rug pads, pipe insulation, and other places where color is of no importance.

Improved methods of bleaching these materials have changed this picture with the result that today animal hair, properly graded as to fineness and staple and bleached out to a uniform creamy color, is finding its way into blends of wool and synthetic fibers that are made into clothing, blankets, rugs, and other materials.

Ray J. Stecker, head of the Stecker company that has handled animal hairs since 1940, started to bleach them in 1953.

Working with a leading research laboratory, the Stecker staff evolved a method of bleaching based on hydrogen peroxide that has been very successful.

Hair Sources Are Many

Stecker's sources of animal hair range from Europe, Asia, and the Middle East, which supply goat hair, to domestic tanneries that either shear the hair from the cattle and goats or remove it by depilatories after slaughtering.

The variations in color, staple, fineness, and the condition in which the hair is received have to be taken into account in processing.

Washing Is the First Step

For years, before bleaching animal hair was practical, the Stecker Co. washed and dried the hair and baled it for shipment to manufacturers of cattle-hair products.

Washing is still the first treatment applied to the hair.

To remove depilatories, dirt, and other foreign matter, the hair is thoroughly wet out in a prewasher with a continuous flow of fresh water. Then it is lifted by a tined conveyor to the main washer, where it is moved forward by an endless screen toward the delivery end. Paddles keep the hair submerged while it is carried forward on screens through which the heavier particles of dirt drop.

The stock feeds to a doffer apron, where a cleaning roll scrapes the hair from the apron and deposits it on a draining apron that passes between steel squeeze rolls. The hair then passes between rubber-covered rolls to remove more water and is blown to the dryer.

Transporting the hair by blowing it through a 35-ft. pipe cuts down handling and at the same time helps to break up lumps and tangles.

The dryer is a conventional stock dryer that carries the hair on an endless apron. A kicker at the entering end helps to break up the hair and distribute it evenly. Drying temperatures vary with the stock being processed but are generally kept around 200° F.

As the hair is delivered from the dryer, it falls onto a conveyor belt that takes it to a vertical conveyor that delivers it directly to a baling press.

Pretreatment Protects Fiber

The real trick in Stecker's bleaching process is the pretreatment that protects the keratin of the fiber from the action of the peroxide and at the same time makes the pigment component more susceptible to bleaching.

The pretreating and bleaching are done in stainless-steel kiers loaded with 800 lbs. of animal fiber.

After a thorough wetting out in warm water containing a wetting agent, the stock is treated with a solution of formaldehyde and an iron salt. The formaldehyde stabilizes the fiber

RAW CATTLE HAIR is received wet and is forked into the washer (background) where dirt and depilatories are removed.

and protects the keratin content against the effects of the subsequent peroxide treatment.

The iron salt acts as a catalyst and tends to concentrate the bleaching action at the pigment sites.

Following the pretreatment, the hair is bleached with a peroxide solution buffered with mild alkalis such as borax, phosphates, soda ash, oxalates, and the like.

Formulations vary with the type of stock being processed and the degree of bleaching required.

The entire process usually takes 3 to 4 hrs. Processing temperatures during pretreatment vary, but generally temperatures range up to 180° F.

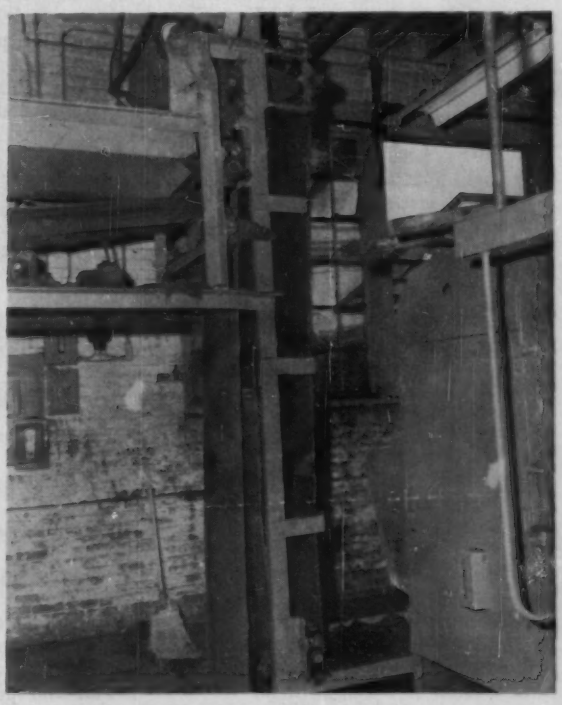
After the hair has reached the desired shade, the bath is dropped and a fresh rinse in warm water is given the stock. At this point, it may be desirable to remove any traces of iron salt retained by the fiber. The hair is left slightly acid to help with dyeing.

Rinse water is expelled from the kier with the aid of compressed air, which helps remove a great deal of the entrained moisture. The load is lifted out of the kier in a cake and transported on a monorail to a storage area. The hair is finally put through the dryer and baled for shipment.

The product ranges in color from light buff to creamy, depending on the degree of bleaching. Acid colors produce bright shades on this base, which makes the bleached hair a valuable component of fabrics going into many uses for which the unbleached fibers are not suitable.

A considerable amount of the Stecker Co.'s annual output of 20-million lbs. of processed hair is now being bleached for these new uses.

PRETREATING AND BLEACHING animal hair are done in stainless-steel kiers that hold 800 lbs. of stock.



HANDLING IS MINIMIZED by this pair of closely spaced belts that convey dried hair from the dryer up to the baling press.

CLEANING and OVERHAULING

Spotlight Alabama Spinning Forum

Two major topics, the cleaning and overhauling of spinning frames, featured the spinning session at the recent meeting of the Alabama Textile Operating Executives. Reports from mills, having a total of more than 1-million spindles, covered—

- **Processing data for spinning**
- **Work assignments**
- **Cleaning schedules**
- **Overhauling procedures**

Processing Data and Cleaning Schedules

Fifteen mills gave full details of their spinning operations, including speeds, work assignments, and cleaning schedules. Typical reports are:

Mill A—"We spin 18s yarn on clutch spindles. Front-roll (1-in.) speed is 165 rpm., twist 14.14 tpi., ring size 2¼ ins., traveler speed 4,330 ft. per min., and ends down 30 per thousand spindle hours.

"Roberts drafting and Pneumafil suction cleaning are used. Yarn is spun from 1.40-hk. 10x5 roving that weighs 28 oz. per bobbin. Work assignment is 1,890 spindles per operator.

"Our cleaning schedule is:

1. Wipe back sides, front stands, Pneumafil flutes, flute hangers, weight wires, and levers once each shift at the doff
2. Keep front sides clean and roving tails off bobbin hangers at all times
3. Wipe base rails and spindle rails twice each shift at designated hours
4. Clean these items on one side each day:
   a. Bottom and top rolls and around aprons and cradles
   b. Tape tighteners, green boards, weights, and samsons
   c. Front stands with a stand hook
   d. Spindle and base rails, front and back
   e. Roving stands and roving-trumpet slides
   f. Roll bars and gear covers
5. Clean ring rails and separators on assigned sides twice each week with a brush
6. Clean under one side of spindles with a roll picker while the frame is stopped during the week before each payday
7. Clean all top revolving cleaners during the week after each payday."

Antifriction Spindles Run 205 Rpm.

Mill B—"We spin 14s and 27s filling on conventional spindles and 21s and 31s warp on antifriction spindles. For 14s filling, front-roll speed is 205 rpm., twist 13.96 tpi., ring size 1¾ ins., traveler speed 3,910 ft. per min., and ends down 35 per thousand spindle hours.

"Dead weights and Pneumafil are used on the drafting assembly. The 14s yarn is spun from 0.60-hk. 12x6½ roving. Spindle assignment is 2,148 per operator.

"For 31s warp, front-roll speed is 112 rpm., twist 24.19 tpi., ring size 2¼ ins., traveler speed 5,242 ft. per min., and ends down 35 per thousand spindle hours.

"Spring weights and Pneumafil are used on the drafting assembly. The 31s yarn is spun from 0.90-hk. 12x6½ roving. Spindle assignment is 3,754 per operator.

"Our cleaning schedule for a 120-hr. week is:

1. Wipe backs and flute hangers once a week
2. Brush base and spindle rails once a day
3. Run out guides once a day
4. Clean front revolving top clearer once every two weeks
5. Clean roving traverse bar and gear covers once a week
6. Fan and pick lint from frame when it is blown off
7. Blow off frame once a week (section men, oilers, and alley men)
8. Mop head and foot end once a day (oilers)
9. Pick rolls with a mechanical roll picker every 168 hrs. on 25s and 30s and every 144 hrs. on 21s."

Suction Cleaning Is Not Used

Mill C—"We spin a wide range of numbers on New Era spindles. For 17s warp, an average number, front-roll (1-in.) speed is 151 rpm., twist 19.78 tpi., ring size 2½ ins., traveler speed 6,143 ft. per min., and ends down 35 per thousand spindle hours.

"Our drafting assembly is Whitin Casablancas; we do not have suction cleaning. The 17s yarn is spun from 0.90-hk. 10x5 roving that weighs 1.6 lbs. per bobbin.

"Our cleaning schedule is:

1. Wipe all roll beams and thread guides once each shift
2. Clean boards on all sides three times per shift
3. Clean lap sticks on all sides twice per shift
4. Pick one-third of the front steel rolls and front stands once per shift
5. Clean or pick one-third of the following items each week:
   a. Back steel rolls
   b. Front revolving top clearers
   c. Top creel boards
   d. Cap bars, roving traverse rods, and roving guide rods
   e. Bottom creel boards
   f. Roll stands
   g. Scavenger roll weights and levers
   h. Back revolving top clearers."

Mill F—"We spin 8s on Marquette spindles and 10.5s to 23s on Saco-Lowell spindles. For the 8s, spindle

speed is 7,733 rpm., front-roll (1-in.) speed 194 rpm., twist 12.74 tpi., ring size 3 ins., traveler speed 6,073 ft. per min., and ends down 30 per thousand spindle hours.

"The frames have Roth drafting and Pneumafil. The 8s yarn is spun from 0.92-hk. 12x6 roving that weighs 48 oz. per bobbin. Spindle assignment is 1,368 (12 sides) per operator.

"For 15s yarn, spindle speed is 8,900 rpm., front-roll (1-in.) speed 153 rpm., twist 18.62 tpi., ring size 2¼ ins., traveler speed 5,240 ft. per min., and ends down 30 per thousand spindle hours.

"Drafting and cleaning systems are the same as for the 8s yarn. The 15s yarn is spun from 1.50-hk. 10x5 roving that weighs 28.79 oz. per bobbin. Spindle assignment is 2,736 (24 sides) per operator.

"Cleaning schedule for spinners is:

1. Wipe Pneumafil ducts every 8 hrs. and remove waste from collector boxes every 4 hrs.
2. Run out sides every 8 hrs. and clean them thoroughly.

"Cleaning schedule for roll pickers is:

1. Clean top rolls every 24 hrs.
2. Clean back scavenger roll, cap-bar rods and racks, top revolving clearers, and bottom and middle creel boards or steps every 120 hrs.
3. Clean top flat clearers every 24 hrs.
4. Clean ring rails and separator blades every 24 hrs."

Overhauling and Traveler Changing

The majority of the reporting mills completely overhaul spinning frames at least once a year. Some mills overhaul frames and rebuff cots every six months. Most of the plants follow a definite traveler-changing schedule when new rings are being broken in. Typical reports are:

Mill F—"Our spinning frames are overhauled and cots are rebuffed once every six months. The steel rolls are scrubbed at the time of overhauling.

"To break in spinning rings, we first change travelers at intervals of 15 mins., 1 hr., and 2 hrs. Then we make four changes at intervals of 4 hrs. each.

"At this point, rings are thoroughly cleaned with white waste. We next make five changes at intervals of 24 hrs. each and four changes at 48-hr. intervals.

"Rings are again cleaned inside with white waste or cloth. The traveler-changing schedule is twice a week until the travelers can run a full week without excessive wear or burning. We do not alter spindle speed."

Overhauling Has Two Phases

Mill J—"Our overhauling is done in two cycles each year. The first cycle includes cleaning steel rolls, replacing worn aprons, buffing top rolls, and setting cap bars.

"The second cycle, which is somewhat more elaborate than the first, is:

1. Clean steel rolls
2. Replace worn aprons
3. Buff top rolls
4. Set and replace cap bars
5. Shellac and repair creel
6. Align and level frame
7. Replace worn lifting-rod bushings
8. Set and replace traveler cleaners
9. Plumb spindles
10. Overhaul head end
11. Clean central-lubrication-system tank
12. Check all oil connections

"All cots are buffed twice a year, and front rolls are changed if we switch from coarse to fine numbers. A special overhauling crew is used.

"Traveler-changing schedule is: first change 1 hr.; second and third change 2 hrs.; fourth and fifth change 4 hrs.; sixth and seventh change 8 hrs.; eighth, ninth, and tenth change 16 hrs. After the tenth change, we go on our regular 32-hr. changing schedule."

This Plan Has 15 Steps

Mill K—"Our 12-month overhauling procedure is:

1. Align and level frame
2. Align and level roll stands
3. Align, level, and repair cylinders
4. Replace bad tapes and set tape idlers
5. Level and fasten down motor base
6. Match motor belts in full sets
7. Clean and level ring rail and traversing thread board
8. Set roving traverse and trumpet
9. Dismantle, clean, and replace worn parts of builder
10. Check jack gear and stud and cylinder gear
11. Check and repair head-end assembly
12. Clean central-lubrication pump and install a new filter
13. Adjust weight arms and check weights
14. Plumb spindles and set thread guides
15. Flush bolsters and refill oil cups

"We rebuff front-roll cots every three months and back-roll cots every six months.

"Travelers on 2¼-in. rings are changed every hour for the first 24 hrs., every 2 hrs. for 24 hrs., every 4 hrs. for 24 hrs., every 8 hrs. for 72 hrs., every 24 hrs. for 72 hrs., and every 60 hrs. thereafter."

Mill N—"We overhaul every eight months and buff the cots at the time of overhauling. The procedure is:

1. Dismantling

a. Take out stock

b. Remove, examine, and clean all clearers; replace if necessary

c. Remove and buff top rolls

d. Check roll tips, cap bars, and saddles; replace if necessary

e. Lay out steel rolls on special racks

f. Replace worn aprons

g. Clean out and check roll stands

h. Clean and repair head-end gearing

i. Clean beneath frame

j. Align and level frame

k. Wash creel boards with soap and water, and clean ring rails and separators with a wire brush or steel wool.

2. Assembling

a. Lay in steel rolls and make sure roll necks are in good condition and the roll is straight at all joints

b. Turn cap bars back; gauge tips and top rolls

c. Install saddles and level levers with a gauge

d. Put in all clearers

e. Check all lubrication points

f. Put stock back in the frame

3. Plumbing

a. Cut ends back

b. Plumb spindles at top and bottom

c. Replace traveler-cleaner pins

d. Check all parts of frame for running condition

e. Start frame and have its operation approved by the department supervisor

"The department supervisor signs the work card, which is then turned in to the maintenance office with a list of replacement parts and gears used.

"New rings are washed with warm, soapy water, dried, and rubbed with starch. Travelers, five numbers lighter than normal, are changed every 8 hrs. for several days. The cycle and weight are gradually increased until normal operations are reached."

LOOMS in the new addition are 44-in. Draper X-2's operating at 178 ppm.

NEW LOOMS At Graniteville

In a new addition to its Hickman Mill, the Graniteville Co., Graniteville, S. C., has installed 240 new X-2 looms. The looms are weaving heavy twill, and they have—

- **Diehl power transmitters**
- **Clock-spring tops**
- **Electric warp stop motions**

In a new addition to its Hickman Mill, Graniteville, S. C., the Graniteville Co. has installed 240 new Draper X-2 looms. Driven by Diehl power transmitters, the looms operate at 178 ppm. They are mounted on felt pads.

The looms are 44 ins. wide and have electric warp stop motions, double side filling forks, Roper let-off motions, and high-roll worm-driven take-up motions.

Other features of the looms are clock-spring tops, vibrating whiproll cams, midget feelers, and Stafford thread cutters.

Loom Beam Holds a Lot of Yarn

The 26-in. warp-yarn beams hold an average of 520 lbs. of yarn. The uniformity of the warps has been improved by the installation of pneumatic presser rolls on the slashers. The presser rolls also make it possible to put about 10% more yarn on each beam.

The filling is spun on 8¾-in. quills. Opossum fur on front and back walls of the dogwood shuttles is used in conjunction with two tufts of pig bristles to help control the filling yarn.

After cutting out an exhausted warp, the warp man cleans and lubricates the loom. Patterns are tied to new warps by a stationary tying machine. Beams are transported by means of a Cleveland Tramrail monorail conveyor system.

The loomfixer checks the loom at warp-out and starts the loom after the new warp is tied in. Compressed air is used to clean each loom twice daily.

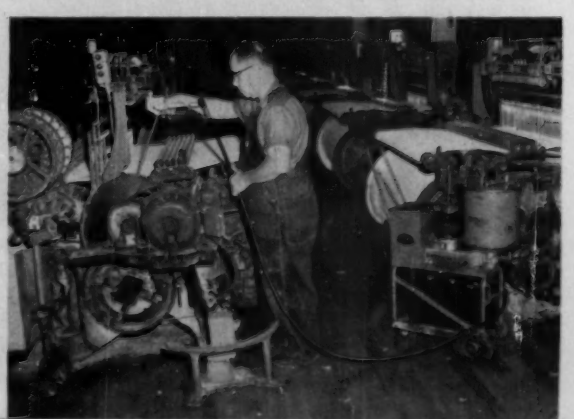
Batteryhands use trucks fitted with removable canvas hoppers. Cloth is doffed in 80-yd. rolls and carried immediately to the cloth room for inspection. The cloth is folded and placed on a table where it is closely inspected.

The weave room has a Bahnson air-changing system. The humidifier lines are mounted in front of the air ducts. Atomizers are grouped in pairs in front of the air vents. The standard temperature is 80° F., and relative humidity is 86%.

When the new X-2 looms were ordered, the mill began training loomfixers for the jobs. The Graniteville company has a well-developed training program [Textile World, Oct., '57, p. 93]. The loomfixers attended 2-hr. classes twice a week for 10 weeks. Actual work on looms was taught in the classes along with classroom work. It is a policy of the mill to upgrade and train employees whenever possible instead of hiring outsiders.

The performance of the new looms has been very satisfactory. Average loom efficiency is about 95%, and quality is high.

LUBRICATION of the main loom bearings is done with this battery-powered unit.



Changing Over to 12x7 ROVING? Here Are Some Pointers—

Before converting your old 12x6 roving to 12x7 frames, you should consider—

- **Direct and indirect costs**
- **Contour of cone**
- **Degree of twist and tension**
- **Possible spreading of flyers**

By RICHARD S. CROSLEY

THE 12x7 PACKAGE is at present the most promising development in the roving stage of yarn processing. The increased yield per spindle and per manhour offer rewards, but there are problems that must be solved by you and the machinery manufacturer before you change over your old 12x6 frames to the larger package.

The first problem, which must be approached on a realistic basis, is a sound evaluation of the actual advantages of the change. Costs must be balanced against production gains; and cost calculations are never clear-cut because factors to be considered range from obvious direct costs to those that are much less tangible.

Direct Costs Are Obvious

First, you should consider direct costs. The largest of these is the cost of the new 12x7 roving frame or the parts required to convert an old 12x6 frame to the larger package. Another direct cost is represented by new bobbins.

Next, a decision must be made as to whether it is better to use an old frame and change it over or to buy a new frame. If the money is available for new frames, then new frames are the answer. If money is not available for new frames, old 12x6 frames usually can be changed over to give fair results. The cost is lower than for new frames.

The usual procedure for changing over old frames is to take advantage of modern subassemblies. A rebuilt frame may give reasonably satisfactory results but rarely gives complete satisfaction. On the other hand, the new frame is built and guaranteed to make a full 12x7 package.

A frame designed for a 12x6 bobbin is cramped for space when a larger package is built. The height of the frame does not allow full leeway for all the adjustments that have to be made to run a bigger bobbin.

The builder jaws and other parts of the builder are usually pushing their limits to make a satisfactory bobbin. The larger packages are of greater weight, which places more stress and strain on all parts of the frame. But the gravest obstacles center upon the flyers and the cone.

Cone design cannot be approached from a strictly mechanical-design point of view because of the variable nature of roving. The task of the cone in maintaining an even tension on a loosely formed strand of fibers is extremely delicate and difficult.

The problem would be tough enough if all roving processed on all 12x7 frames were the same. Unfortunately, the roving varies in number and density from one mill to another and from one section of a mill to another. Number, the type of fiber, and the amount of twist all have definite effects upon the size and the density of the strand.

Contour of Cone Is Important

The density of the strand has a critical effect on the winding of the roving on the bobbin that is related to the tension of the strand. Tension is regulated by the contour of the cones. The best cones in use today were not designed on a drawing board; they are the product of trial and error. The cone contour was developed inch by inch by building up or cutting down the diameter until the tension was correct at each point.

The cone therefore becomes an important factor to consider in examining the problem of a new frame versus a change-over. When a new frame is purchased, a cone is furnished that is designed specifically for a 12x7 bobbin. The tension is correct, and the necessary frame components are adjustable to compensate for the added width of the bobbin. The cone is longer than the cone on the conventional 12x6 frame in order to maintain the tension throughout the added bobbin building.

In some instances, the new type of 12x7 cone can be installed on the older frame as part of its conversion. The application, however, probably will not be simple or inexpensive. A new cone, especially on the 12x7 frames, should be supported by antifriction bearings.

Antifriction Bearings Are Needed

Most old frames were designed for plain bearings, and the samsons cannot be used to hang a new shaft with antifriction-bearing support. In such cases, a new No. 2 and No. 3 samson must be added. This modification leads to other changes involving the replacement of a large number of parts.

The basic question as to whether it is more economical on a long-range basis to fix up an old frame or to start out with a new frame represents a real problem. The answer, partly technical and partly in the field of economics, boils down to whether the old frame can make satisfactory roving and whether there are real savings in an old frame.

The operating advantages of the 12x7 frames are based on the fact that the larger package holds more roving, which lengthens the doffing cycle of the roving frame and the creeling cycle in the spinning room. Efficiency is improved and work assignments can be adjusted on a favorable basis. Qual-

CONTINUED ON PAGE 147

DYNEL is used to produce this fabric, which closely resembles Persian lamb. To date, black yarns have been used but fabrics in other colors are to be developed.

METALLIC YARNS are fed to the face of the fabric, and the embroidery threads lock it in place. The extra yarn can be controlled so that it is fed only at intervals.

New Embroidery Techniques Produce UNUSUAL FABRICS

• By using a new technique of laying in yarns on a Schiffli embroidery machine, Multitex Products Corp. is producing new fabrics that can be used for coats, trimmings, and dress fabrics. Curled Dynel and metallic yarns are some of the yarns used in these unusual fabrics.

BY LAYING IN EXTRA YARNS ON ITS SCHIFFLI EMBROIDERY MACHINES, Multitex Products Corp., Newark, N. J., has opened the door to the production of many exciting new fabrics.

Metallic yarns, slub yarns, and chenille yarns can be used with the regular embroidery threads. One of the most popular fabrics produced to date has been a fabric made from Dynel that resembles Persian lamb.

Authentic Persian lamb is scarce and expensive. Attempts have been made for some years to duplicate Persian lamb on knitting machines and by hand. The latter technique has been successful in France for some time, but the high cost of making these fabrics has made them prohibitive for many end uses.

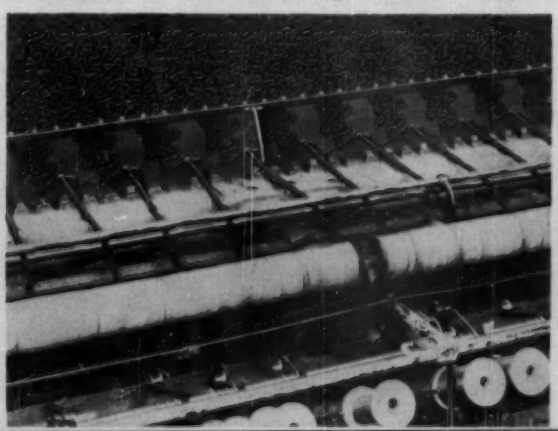
The new technique employed by Multitex uses a principle similar to the hand techniques, but the cost is about one-fourth that of the hand-made product. Cost of the new fabric is about $8 per yd.; so markets that were previously closed to these fabrics will be opened up.

Woven cotton fabrics are the base for simulated Persian lamb that is called Dynacurl fabric. The backing, however, can be made from nylon nets and many other fabrics, depending on the end use desired.

CONTINUED ON PAGE 206

CHENILLE YARN for the Dynacurl fabric is passed through the ridged metal tubes of this curling machine. A mechanical action controls the curling, and a heat-setting unit sets the curls.

CURLED YARN is fed to the woven cotton backing fabric through the finger attachments. Working through a jacquard attachment, the cloth and the fingers form a design that shows no repeat.



A Panel Discusses—

PLANT COMMUNICATIONS

The importance of communication, both up and down the line, was discussed recently by a panel of practical mill men. Members of the panel agree that—

- **Two-way communication is needed**
- **Workers want to know the score**
- **Supervisors should learn to listen**

MODERATOR: We realize that communications are very important in employee relations. We must have good communications from the top down and from the bottom up. What kind of information should be passed down from management to the worker?

MEMBER: Information that personally affects an employee should certainly be passed down to him. Any knowledge that you have of operating changes, running schedules, or changes in jobloads should be passed on down to everyone who will be affected.

Any information about new machinery or machinery changes should also be passed on down the line. All workers are vitally interested in anything that may change their jobs.

MODERATOR: How far in advance of actual changes should employees be notified?

MEMBER: As soon as possible. Three or four months in advance is not too soon. There will be information leaks when the machinery is ordered or schedule changes are planned. If facts are not issued by management, false rumors will often get started and do irreparable damage.

MODERATOR: Do you think employees should be informed about business conditions?

MEMBER. Yes, I do. If it appears that a cutback in production is necessary, all employees to be affected should be advised as soon as possible. On the other hand, management should not keep employees in the dark when the company is making money. When they know that business is good, the employees have a feeling of security and morale is given a boost.

MODERATOR: Should employees be kept informed of their individual status within the company?

MEMBER: By all means. Every employee wants to know where he stands. If an employee is promotable to another job, or even to another shift, he should know it. But if his chances of getting something better are not so good, he should also know about that —and should be told why.

MODERATOR: How should information be passed down the line?

MEMBER: The most direct way is through the overseers and second hands. If these men are kept informed, they can answer all questions that might arise as well as pass on general information.

MEMBER: We have safety committees composed of a large number of employees. Whenever this committee has a meeting, we review the plans of the company—new equipment that is to be put in, when it will be installed, and what it will do.

We also have a little newspaper that is published twice a month. We see that pertinent information is printed in this paper, and we distribute it to all our employees.

MODERATOR: What about information coming from the employee? Does anybody here have a formula for listening to the workers?

MEMBER: I think the main thing is to have the supervisors close to the workers. If the supervisor will answer questions freely—or if he doesn't know the answer, he will get it from higher management—then a two-way communication system will develop.

MEMBER: We have our supervisors talk to people and also listen to them at every opportunity. We have found that this method gets a lot of information that is useful to us. It also gives us an opportunity to straighten out some misunderstandings.

We find questions coming up about things that happened as long as 10 years ago. Sometimes we have to hunt back through old records to get the facts, but it is always worth it. Even if the worker does not agree with the facts, it makes him feel good to know that you will go to a lot of trouble to give him an answer.

MODERATOR: What would you say is the biggest advantage of having two-way communications?

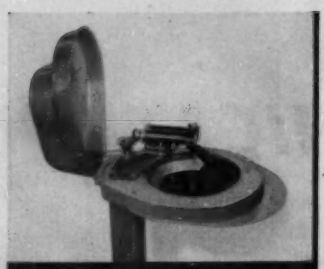
MEMBER: Well, there are so many advantages, it's hard to pick out the most important. I'd say that it is the spirit of cooperation that results from mutual understanding that is most important. It makes the employee feel that he belongs, that he is important to the company.

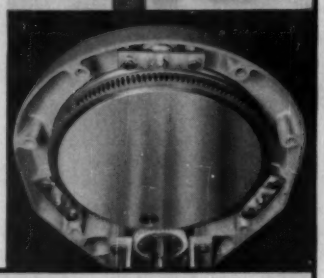
MEMBER: I believe that one of the biggest advantages of two-way communications is that you learn the wants or needs of the employees. Also, you may think that you've got certain company policies across, only to learn that you haven't when employees start asking questions.

CONTINUED ON PAGE 212

Based on a discussion at the fall meeting of the Southern Textile Association at Hickory, N. C.

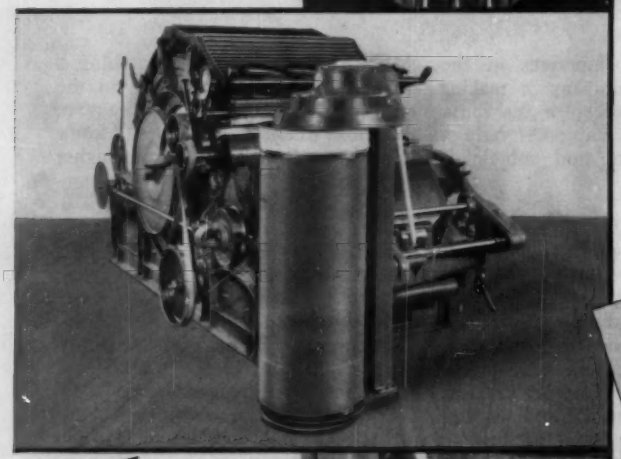
NO OTHER COILER HAS THESE ADVANCED DESIGN FEATURES:





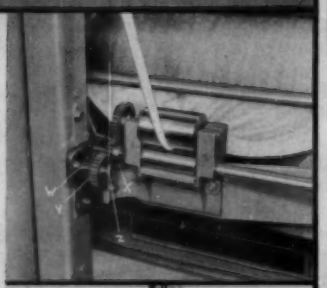
1.

New Coiler Head—*Needs no external lubrication*, thus eliminating yarn soilage. Calender Rolls are mounted in anti-friction bearings. The Coiler Tube Gear, driven by a nylon pinion, is supported by 3 roller assemblies mounted in anti-friction bearings. Tube gear therefore runs dry, never needs lubrication.



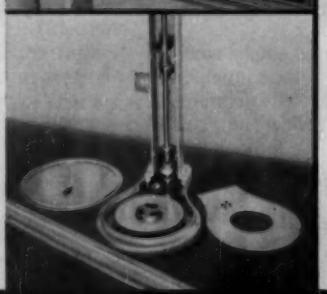
2.

Coiler Drive, with anti-friction bearings throughout, located close to the card calender rolls. Rigidly mounted spur gears, Y, carried in an adjustable bracket on the coiler post, mesh with the bottom calender roll gear X on the card. The drive enters the coiler trunk through cannon shaft Z, carried in adjustable bearing bracket W.



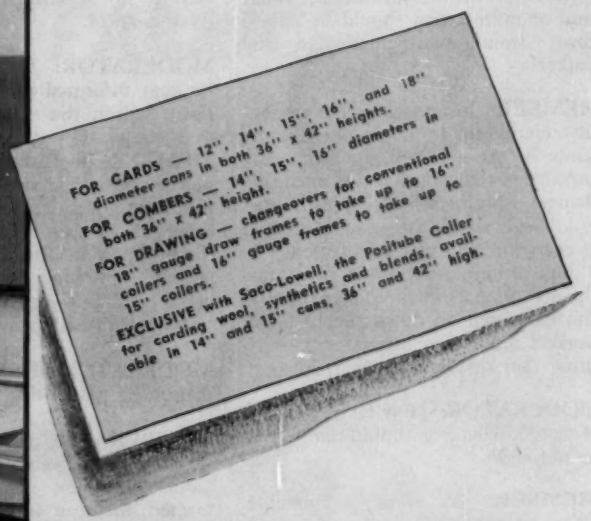
3.

Coiler Base—New type turntable unit makes doffing of large, heavy cans much easier. A raised ring on the turntable engages the inside of the bottom can rim, an improvement over the old method of fitting can inside flange.



Only

SACO-LOWELL has "BIG" COILERS for Carding, Combing and Drawing


FOR CARDS — 12", 14", 15", 16", and 18" diameter cans in both 36" x 42" heights.
FOR COMBERS — 14", 15", 16" diameters in both 36" x 42" height.
FOR DRAWING — changeovers for conventional 18" gauge draw frames to take up to 16" coilers and 16" gauge frames to take up to 15" coilers.
EXCLUSIVE with Saco-Lowell, the Positube Coiler for carding wool, synthetics and blends, available in 14" and 15" cans, 36" and 42" high.

REMEMBER —

SACO LOWELL "BIG" COILERS

- **Reduce labor costs as much as 30%***
- **Reduce "piecing up" at drawing up to 50%***
- **Reduce re-workable sliver waste over 50%***

*Based on actual mill tests.

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Don't Overlook the Value Of Efficient Office Workers

• Departmental office workers are important but often neglected members of the mill team. Because they are neither production workers nor supervisors, the value of their services to the over-all efficiency of the mill is often minimized.

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD

Teamwork is necessary for the efficient operation of a textile mill. The supervisory team, composed of the superintendents, overseers and second hands, works to coordinate the efforts of the production team of machine tenders, fixers, and auxiliary employees.

A lot of time and effort is spent selecting and training the individual members of these teams. A plant's success or failure is often determined by how well it promotes teamwork.

But there is a part of the team that is often neglected. In most mills there are one or more office workers in each department. Being neither an active part of production nor of supervision, the office worker is usually left out of planning.

Because a clerk's job in an overseer's office does not require specialized training, the pay is usually lower than that of the production or piece-rate employees. Such jobs are usually filled by boys or girls just out of high school or by married women and older men who do not like to be on their feet all day on a production job.

Office Workers Have Many Duties

Although not requiring training other than a few days spent in learning the routine, these office jobs do require a good education, a pleasing personality, and above-average intelligence.

Here are a few of the duties of an office worker in a typical weave room:

1. Receives job report from the second hands, marks the time of all employees, and delivers to the main office.
2. Reads pick counters weekly (sometimes daily), adds the picks for each individual weaver for payroll purposes; and figures, from the pick-counter readings, the percentage of efficiency for each weaver, room, shift, and total efficiency for the mill.
3. Receives seconds reports from the cloth room. Tabulates the seconds and makes a weekly report by weavers, rooms, shifts, and total.
4. Tallies the supply-cost reports by sections and fills out a report for each loomfixer and second hand, the overseer, and the superintendent.
5. Figures and classifies waste reports.
6. Assembles and consolidates reports from each second hand and forwards orders to preparatory departments for warps and filling.
7. Makes a daily report showing the number of looms ordered and run on each type or style of fabric.
8. Helps with, and tabulates results of, inventories of materials, products, and supplies.
9. Assists in administering first aid and fills out accident reports.
10. Answers the telephone, handles correspondence, and keeps up-to-date material posted on the bulletin boards.
11. Serves as receptionist to visitors, salesmen, job applicants, and new employees.
12. Delivers reports and messages to all parts of the mill and to the main office.
13. Keeps records of absenteeism, labor turnover, lost-time accidents, and leaves of absence.

The duties of the office workers will vary from one plant to another or in different departments of the same plant. But in addition to the routine duties the office workers are often called upon to do other odd jobs.

They Must Have the Correct Answer

The office worker is also expected to be able to answer any question pertaining to any phase of the department's work. It may be the superintendent calling to find how this week's loom efficiency compares with that of the same week last year. Or it may be a dissatisfied employee who wants to know how his pay rate is figured. The office worker is supposed to have the correct answer on a moment's notice.

While a listing of the duties seems to show the mill office worker to be a jack-of-all-trades, an analysis of the job will show it to be a very important link between the production and supervision teams. In fact, it is a keystone to the entire teamwork structure.

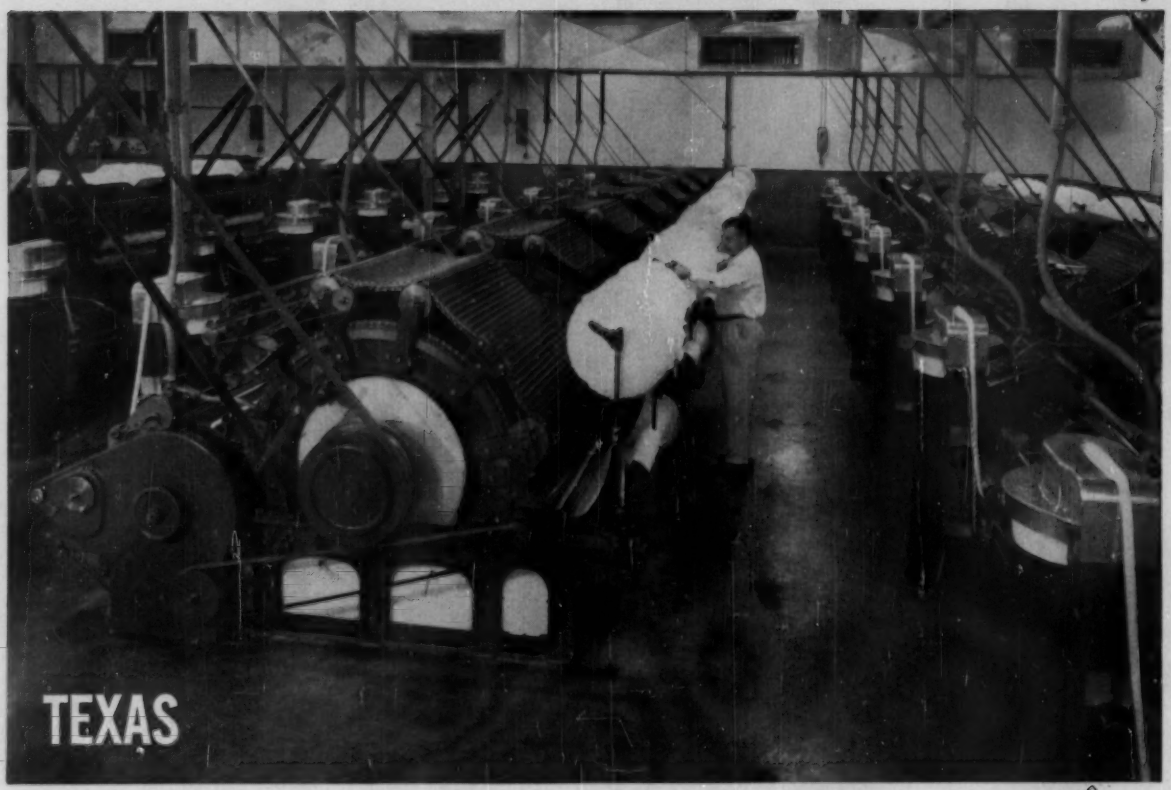
Good relations between supervisor and workers are dependent on accurate records, especially of those pertaining to pay. Careless and indifferent work in the office can offset all the industrial-relations work of the supervisors.

Accurate Records Are Necessary

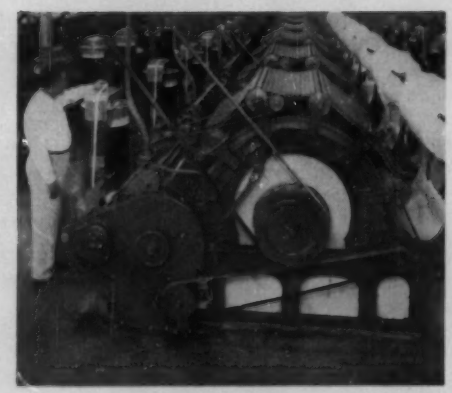
Incomplete, inaccurate, or unavailable records will keep management from properly evaluating the work of a department. It will know when conditions are good or bad but will not know who to blame or praise.

If complete and accurate records are kept, the overseer will have something to back him up when he is called

CONTINUED ON PAGE 147



PLATT CARDS as far as the eye can see...



Platt Cards are solidly built to *close tolerances*. They take and *hold* accurate settings at all work speeds, producing even nepless webs.

At the Postex Cotton Mills, Inc. there are 84 *Platt Cards* running. This fine sheeting mill uses *Platt Cards* exclusively. This is the third installation by the company.

Many cost-conscious mills are discovering the mechanical perfection of Platt machinery and the prompt, personalized service of Atkinson, Haserick & Co. throughout the U.S. May we present to you the cost and quality advantages inherent in machinery made by the *world's largest manufacturer of textile machinery?*

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POINTERS FOR SUPERVISORS

CONTINUED FROM PAGE 145

on the carpet. And he won't have to defend himself and his department so often because with reliable records he can keep abreast of events and locate trouble spots before they grow.

So don't forget the office worker in training programs, incentive plans, and job evaluation. It may be true that an average high-school graduate can learn the details of the job in a week. But it takes a person with exceptional ability and long experience to run one of these office jobs efficiently.

Remember you are asking your office worker to be a mathematician, public-relations expert, diplomat, quiz kid, nurse, secretary, messenger, and clerk all in one package.

And you're probably getting all this for the same wages you pay for your sweepers.

COTTON BLENDS

CONTINUED FROM PAGE 125

run when it reaches the spinning frames.

Single Cleaning Line Is Used

Indian Head uses a single line of opening and cleaning equipment that consists of six F-7 blending feeders, a No. 11 condenser, a vertical opener, a No. 11 condenser over a No. 12 lattice opener, and a No. 11 condenser that feeds to the pickers. Four-bag dust filters are used with the condensers.

About 1,270 lbs. of stock are opened and cleaned per hour when the opening room is running at 80% efficiency. This efficiency is based on picker-production requirements and can be stepped up to 100% when more stock is needed. Waste removed in the opening room averages 1.46%.

One man runs the opening room except when he is laying down bales. Warehouse personnel give him a hand with this job.

Pickers Have Gauge Boxes

The four one-process pickers are equipped with pneumatic rack controls, recirculating-air equipment, and blending reserves. Gauge boxes on the rear control the flow of stock and improve the blending operation.

The pickers have a three-blade back beater that runs 1,065 rpm. and a Kirschner front beater that runs 890 rpm. Back fans run 1,337 rpm.; front fans run 1,407 rpm.

A 13½-oz., 58-lb. lap is produced at 318 lbs. per hr. Laps are 62¾ yds. long and are permitted a ¾-oz.-per-yd. tolerance. Every lap is weighed on a recording lap scale, and the weights are checked each shift. Rejects average less than 0.25%. Waste removed by the pickers averages 2.25%. One man per shift operates the picker room.

12x7 ROVING

CONTINUED FROM PAGE 141

ity improves as a consequence of fewer piecings.

These facts are self-evident. What is not so simple is the evaluation of these factors and their conversion into a dollar figure that accurately portrays the savings to be realized in a given mill installation.

Maximum Twist Multiplier Is 1.25

It is estimated that a full 12x7 bobbin will hold between 64 and 68 oz. of roving as compared with 44 oz. for a full 12x6 bobbin, where the twist multiplier is 1.20. The amount of stock on the bobbin increases in proportion to the amount of twist inserted because the harder-twist roving takes up less space on the bobbin. The harder-twist roving also can withstand greater tension and can be wound tighter than a softer strand.

The trap, and the real source of trouble later on, is twisting the roving so tight that it will not draft out at the spinning frame. A twist multiplier of 1.20 to 1.25 is about the maximum that can be used before running into trouble at the spinning frame.

Another fact to consider is the type of drafting element in the spinning room. It may be possible to add weight on the top rolls, widen the roll spread, and increase the break draft to handle a greater degree of twist in the roving.

The limitation of the spinning frame constitutes a definite limitation on the degree of twist that can be used in the roving, and this factor has a significant effect on the amount of roving that can be wound on a 12x7 bobbin. The amount of roving on the bobbin is the key factor in determining the net worth of the anticipated installation.

Another point of paramount importance concerns the flyer. New 12x7 flyers must be used whether a new frame is bought or an old 12x6 frame is converted. Extreme caution is necessary in arbitrarily setting up operating speeds when an old frame is converted because of the danger of basing estimates on speeds that cannot be maintained because of flyer interference.

Special Flyers Are Necessary

The 12x7 flyer is not the same as a 12x6 flyer with a wider space to accommodate a larger bobbin. The 12x7 bobbin represents a critical point in flyer design because of the difficulty of preventing distortion and spreading of the legs at full operating speeds.

The length of the legs and the arc (7 ins.) at the top of the flyer could have led to a design that is basically unstable. This condition resulted in development of a flyer that is heavily beefed up so that it remains rigid. But even a reinforced flyer cannot withstand speeds of much over 700 rpm. without the legs spreading until adjacent flyers hit each other.

The flyer problem is more acute in converting an old frame. The spacing from flyer to flyer may be enough to accommodate the new flyer on a theoretical basis if there is no spreading.

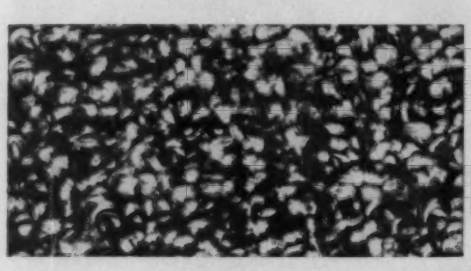
Under actual conditions, there may be enough spread to cause flyer interference at operating speed. If spreading takes place, the speed of the frame has to be reduced until the spreading is no longer excessive.

The result is that the original data used in making the decision to go to the larger-package roving are no longer valid, and the savings originally

Celanese Special Acetate Staples

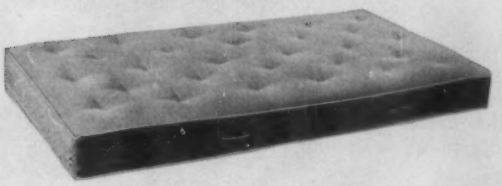
"target fibers"—engineered for specific end-uses

These special types are available in addition to the Regular Acetate Staple Fibers for apparel and home furnishings use. Developed by Celanese research, proven in use, these unique Acetate Staple Fibers are *specially engineered for top performance in specific end-uses.* Mills testify these are "fibers without headache," easy and economical in production. And Celanese not only delivers its fibers, but its technical knowledge as well.

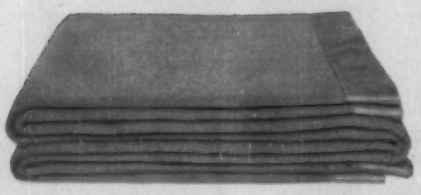


TYPE HC. Celanese high crimp acetate, engineered for carpets. Absolutely tops in tufts. It can be permanently heat set. It takes superb color, cross-dyes beautifully. *Important:* HC enables mills to process coarser deniers on cotton systems for greater efficiency, better pricing.

TYPE K. Engineered specifically for pillows and comforters. This pure white, non-allergenic fiber is exceptionally light and resilient. It processes economically, efficiently, and is priced for volume consumption.



TYPE F. Engineered for mattresses, mattress pads, upholstered furniture, sleeping bags and other end uses. Pure white, mildew and moisture resistant, non-allergenic and comfortably resilient, it gives top performance at low cost.



TYPE D. Special acetate staple engineered for blanket type fabrics. Celanese®

Most available in a range from 2 to 50 denier in various cut lengths and in bright and dull lustres. Celanese Corporation of America, Textile Sales Division, Charlotte, North Carolina.

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planned will not be realized.

Tension Causes Most Problems

Most of the problems in changing over old frames come from the same source—tension on the roving. When the roving leaves the bite of the front drafting rolls, there is little or no twist in the area just in front of the nip of the rolls. There is no twist at the nip itself, and the full amount of twist is not inserted until the fibers are at the nose of the flyer.

Because of this fact, the roving is weakest at the nip of the drafting rolls where it is under the greatest amount of strain. From this point, the soft roving is being pulled forward by the roving that has been twisted as it is wound on the bobbin. Enough total twist must be inserted in the roving so that the partial twist close to the drafting element will impart the strength necessary to hold the fibers in place during their travel to the flyer.

The control of tension variation is magnified by the differences in tension between the two lines of flyers. The back line of flyers is closer to the nip of the front rolls than the front line, and generally there is greater tension on this line of flyers than on the front line. The tension cannot be adjusted by moving the belt on the cone so that roving on both sets of flyers will be the same; a compromise tension is necessarily used.

Whipping Action Damages Roving

High speeds tend to magnify tension variation and the problems arising from tension fluctuations. At high speeds, there is a whipping action that tries to tear the strand apart. This whipping action is greatest at the nip of the rolls, where the amount of strength-giving twist is at a minimum.

The flyer also is a cause of tension variation. As the roving travels to the bobbin, it passes down through the top of the nose of the flyer and out through a hole in the side of the nose. When the flyer revolves, the roving moves out of the side hole first toward the front of the frame and then toward the back of the frame. The movement causes the path of the roving to change, and the snubbing effect is varied as the angle increases and decreases.

There are definite limitations that can be used as benchmarks to evaluate a proposed installation. The speed of the flyer should not exceed much over 700 rpm., and it should be decreased if the gauge of the frame is not 10¼ ins. The twist in the roving must not be more than can be handled satisfactorily by the drafting element in the spinning frame.

Enough twist is necessary to overcome the greater tensions found in making a bigger package, but the exact amount is dependent upon local conditions. Finally, the degree of twist affects the amount of roving that can be placed on the bobbin; and this factor is the major determinant in evaluating the economics of the proposed application.

TUFTED RUGS

CONTINUED FROM PAGE 129

line of the missing tuft and hauled up onto a table where they are cut off into the desired lengths with a circular knife that runs on a track mounted at a right angle to the path of the dried rug.

At this point, rugs that are finished with a fringe are taken to a specially designed machine that sews on a loop 1½ ins. long across the ends of the rugs.

The rugs are sorted and stacked into sizes and styles and put in bins ready to be made up into dye lots.

Dyeing Is Quick and Simple

Velvetone's dyeing operation involves a minimum of steps and materials. The rugs, bundled into 50-lb. lots and ticketed as to shade, customer, and other routine information, are sent down to the dyehouse on a reversible belt conveyor and trucked to the dyeing area.

Two 350-lb. rotary laundry machines and a smaller paddle machine are used for dyeing the rugs. An extractor and a battery of steam-heated tumbler dryers complete the major dyehouse equipment.

The dyeing operation starts with a wetting-out cycle for 20 mins. at 120 to 140° F. Unless dirty stock or very light pastel shades are to be dyed, no preliminary scour is required.

When the goods are thoroughly wet out, the dissolved color is added directly to the bath and the temperature is raised to 160 to 180° F., depending on the colors being used.

After 15 mins. at the dyeing temperature, 1 to 2% owg. of salt is added in the form of brine and the load is let run another 15 mins. and sampled.

If adjustments to the shade are necessary, more salt or color may be added to the bath. In cases where well-established formulas are being used, the shade is reached well inside an hour for the dyeing operation.

When the shade is matched, the bath is coated and dropped; and a final rinse in cool water completes the dyeing.

Velvetone uses only direct colors, chosen for lightfastness and best possible washfastness in the class. An unusual feature in the dyeing operation is that the plant buys from only one dye manufacturer, which keeps inventory at a minimum and simplifies the dyer's problems in reproducing shades.

After dyeing, the rugs are extracted and placed in tumbler dryers that fluff up the pile and help make it thick and dense.

The finished rugs are then sent back on the conveyor to the stock and shipping departments.

A final careful inspection is given each rug before it is packed into cartons for shipment.

FIVE BASIC LAMP DESIGNS

CONTINUED FROM PAGE 98

start lamp, it uses 450 v. to strike the arc in the tubes. But it differs from the ordinary instant start in that it has a single-pin contact instead of the medium bipin contact to hold the lamp secure.

5. **Rapid-start lamp.** When it was first introduced, this lamp was 4 ft. long. Now it is made as a high-output rapid-start lamp 8 ft. long.

This lamp is being used in many new textile installations and will soon be second only to slimline lamps in textile use.

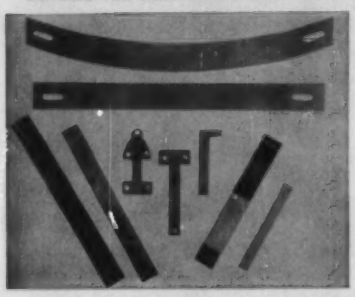
Advertisement

GARLAND MFG. 91st YEAR

Garland Manufacturing Company, Saco, Maine has been manufacturing rawhide products for the textile industry since 1866. H. P. Garland, founder of the company, was the author of a text on the water buffalo and rawhide applications in the textile industry which is used as a standard reference source on the subject. The company buys choice water buffalo hides from Java, Burma and other Far East sources. These hides are cured for the Garland concern in England. The rawhide is further processed in Maine and famous Garland Pickers and other rawhide products are manufactured for textile users.

NEW LINE OF LEATHER PRODUCTS

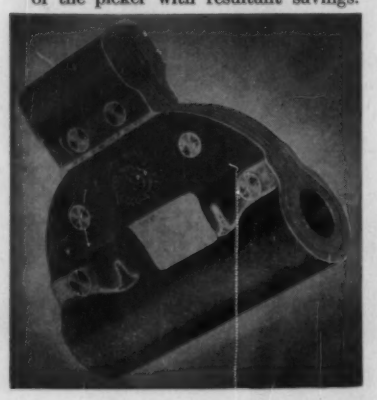
A need of the mills for superior leather products of uniform quality has prompted Garland Mfg. Company to produce check straps and by-products, such as picker checks, hold up straps, etc., of the finest imported hair-on leather as well as binder leather from the best oak tanned leather available.



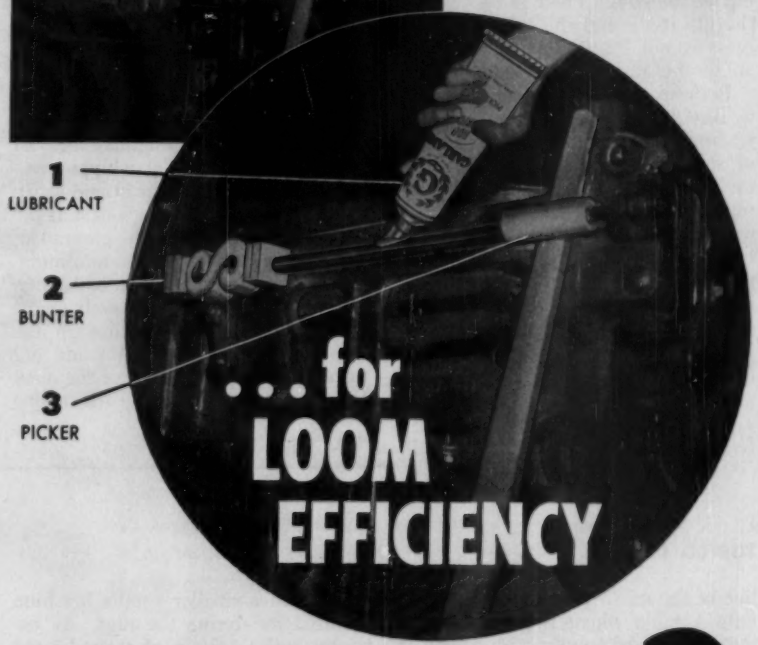
In many cases, it has been found that these superior products, because of Garland's production methods, are selling at prices lower than inferior grades.

REINFORCED LOOM PICKER

Research based on a survey of mills has enabled the Garland Manufacturing Company to produce a picker that far out-lives previous types. The new loom picker has a reinforced stick hole that corrects a basic weak point of pickers generally . . . provides much longer service. Likewise the spindle hole has been improved and strengthened by locked-in flanges at both ends. The picker head has been strengthened by a heavier outside layer of rawhide, eliminating the need for a rivet through the picker head. Mills using the reinforced loom picker have reported much longer life of the picker with resultant savings.



ALL 3 GO TOGETHER



GO TO GARLAND FOR ALL 3

It's a more efficient loom with Garland's rod lubricant, sponge leather bunter and rawhide picker! Here's why:

1. ***GARLAND ROD LUBRICANT AND APPLICATOR*** – Overcomes disadvantages of old-fashioned methods. Lubricant's tacky substance clings to rod. Eliminates oil drip, regular grease pile-up, overheating, excessive friction, frequent loom stoppage. Applicator fits all size rods. Squeeze of tube spreads uniform thin film of grease.

2. ***GARLAND SPONGE LEATHER BUNTER*** – Exclusive genuine sponge leather "takes" shock better. Long life assures economical operation. "Proved" through wide industry use. Now available in unlimited quantities for the first time.

3. ***GARLAND GENUINE RAWHIDE LOOM PICKER*** – Reinforced stick hole for longer service. Heavier, stronger picker head . . . pressure molded . . . improved spindle hole . . . water Buffalo hide — toughest material available, anywhere.

WRITE TODAY FOR FREE INFORMATION ABOUT GARLAND PRODUCTS FOR GREATER LOOM EFFICIENCY

Garland MANUFACTURING CO.

Manufacturers of RAWHIDE LOOM PICKERS • SPONGE LEATHER BUNTERS • RAWHIDE HAMMERS AND MALLETS

54 WATER STREET • SACO • MAINE

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SLASHING PROBLEMS

CONTINUED FROM PAGE 115

25 or 30 dents when we strike a lease in order to have a smooth selvage.

"Our sets run 1,100 to 5,000 ends per set. Yarn numbers vary from 3.50s to 18s and cloth widths from 22 to 118 ins."

Mill N—"We count our leases to get a smoother face on 26-in.-dia. loom beams. The smooth face on the loom beam makes better weaving possible.

"On an 11-beam set of 14.25s yarn with 4,609 ends, we count 11 ends per dent on a comb that has 25 dents per panel and 18 panels in the comb. The cloth width is 43½ ins."

Mill R—"We pick leases in our warps. Advantages are smoother warps, fewer stuck ends, and higher efficiency on slashers and looms. Our warps range from 564 to 1,264 ends of 10s to 15s, and cloth widths are from 26 to 50 ins."

QUESTION: "What percent waste do you make in slashing? Show hard thread and soft thread waste and hard thread from weaving."

Mill B—"We make approximately 0.3% waste at the slashers. About two-thirds of the total is hard waste and the rest soft waste."

Mill E—"Our slashing waste is:

"Hard thread 0.50%

"Soft thread 0.60%

"Weaving 0.75%"

Mill G—"Our slasher hard waste is 0.185%, and soft waste is 0.31%. Weaving hard-thread waste is:

"Bad-warp waste 0.10%

"Tying-in waste 0.11%

"Loom-beam waste 0.30%."

Mill I—"Our percentage of slasher waste, including floor sweeps, is about 1.40%. Broken down, the average is about as follows:

"Soft white waste 0.19%

"Soft color waste 0.79%

"Hard white waste 0.14%

"Hard color waste 0.25%

"Floor sweeps 0.03%

"Hard white weaving waste is about 0.38%, and color waste is 0.48%."

Mill Q—"From the front of the slashers we have 0.19% soft waste and 0.57% hard waste. From the back of the slashers we have 0.25% soft waste, a total of 1.01% thread waste from the slashers. Our hard waste from the weave room is 0.06%.

QUESTION: "Do you have difficulty controlling stretch?"

Mill A—"We calculate our stretch for every set run. The input yardage is taken from the warper yardage, and the output yardage is taken from a counter at the delivery roll. We keep stretch between 1.5% and 2.0%."

Mill B—"We do have difficulty controlling stretch. We have an indicator that gives the percentage of stretch constantly. We try to keep the stretch on heavy sets from 2 to 2½%.

"We have a three-can low-pressure slasher and a nine-can high-pressure slasher. Our fabrics are osnaburgs, ducks, and industrial fabrics of from 22- to 118-in. width."

Mill K-2—"We have no difficulty controlling stretch. Our standard for all cotton goods is 1.5% stretch. However, on some of the 120-in. goods we have a stretch as high as 1.7%. We have both hot-air and can slashers. Fabrics produced are wide sheetings (muslin and percale), lightweight sheetings, print cloth, and commercial sheetings varying in width from 36 to 120 ins."

Mill N—"We have no difficulty with stretch control. Our standard is 1.75% with a 2.00% maximum. We have a multican slasher with multimotor drive and dual size boxes. We weave Type IV twill 43½ ins. wide with 4,609 ends of 14.25s yarn."

Mill R—"Our stretch is controlled from 1½ to 2% by positive-driven creels. No difficulty is encountered with stretch. We have two Saco-Lowell three-can, friction-type slashers. Our weaves are terry goods of 26- to 50-in. width, woven from 564 to 1,260 ends of 10s to 15s yarn."

Mill S—"We use a Link-Belt P.I.V. drive to the size box and can control stretch on sheeting yarn from 1 to 1½ %. We run 2 to 2½% stretch on twills."

Mill U—"We have no great difficulty controlling stretch. We use variable-speed drives on our slashers. Our standard stretch is 1½% ±½%."

QUESTION: "How much variation in size pickup do you have?"

Mill E—"From one warp to another, our size pickup varies about 1%. We do not check pickup across the warp."

Mill I—"We have variations in size pickup from one warp to another of about 0.5%. There is no noticeable difference in pickup across the warp."

Mill J—"We have approximately 5% variation in size sometimes when we check the first four warps in a new set. We also have about the same variation from the right- to the left-hand side of the warp."

Mill N—"Our variation of size pickup from beam to beam is approximately 0.7%, plus or minus. When 15 consecutive beams were desized, the average was 11.6% added size with a range of 1.4%."

Mill R—"Our size pickup varies 1% on pile warps and 1½% on ground warps. The pickup is checked by the laboratory twice weekly. No checks are made across the warps or from one warp to another."

Mill T—"Variation in size pickup on some yarn numbers runs from 0.5% to 1%; from one warp to another 0.25% to 0.50%; across the width of the warp 0.25% to 0.75%."

Mill U—"Variation in size pickup from one warp to another is 0.4% to 0.6%, and across the width of the warp variation is 0.1% to 0.3%."

OIL- AND WATER-REPELLENT FABRICS

CONTINUED FROM PAGE 121

The aluminum-acetate mordant treatment did not produce as good results as the latex-chromium complex trials except where very high concentrations of perfluoro-octanoic acid were used.

The mordant treatment did increase rot resistance of the fabrics, while some others tested did not.

Soiling resistance was good in samples treated with the chrome complex alone, and this was true also with those that had been mordanted with aluminum triacetate.

All samples showed good retention of oil resistance to hexane or carbon tetrachloride, but only those treated with the fluoro rubber latex withstood normal laundering.

Water-spray ratings (AATCC method) were not as good as is usually expected of goods treated for water repellency; but the two-step Hycar-chromium complex produced a rating of 80 on an 80-square fabric, and a 70 rating was obtained from the Rhoplex B-15-chrome complex trial and the Hycar combination on an 8-oz. sateen.

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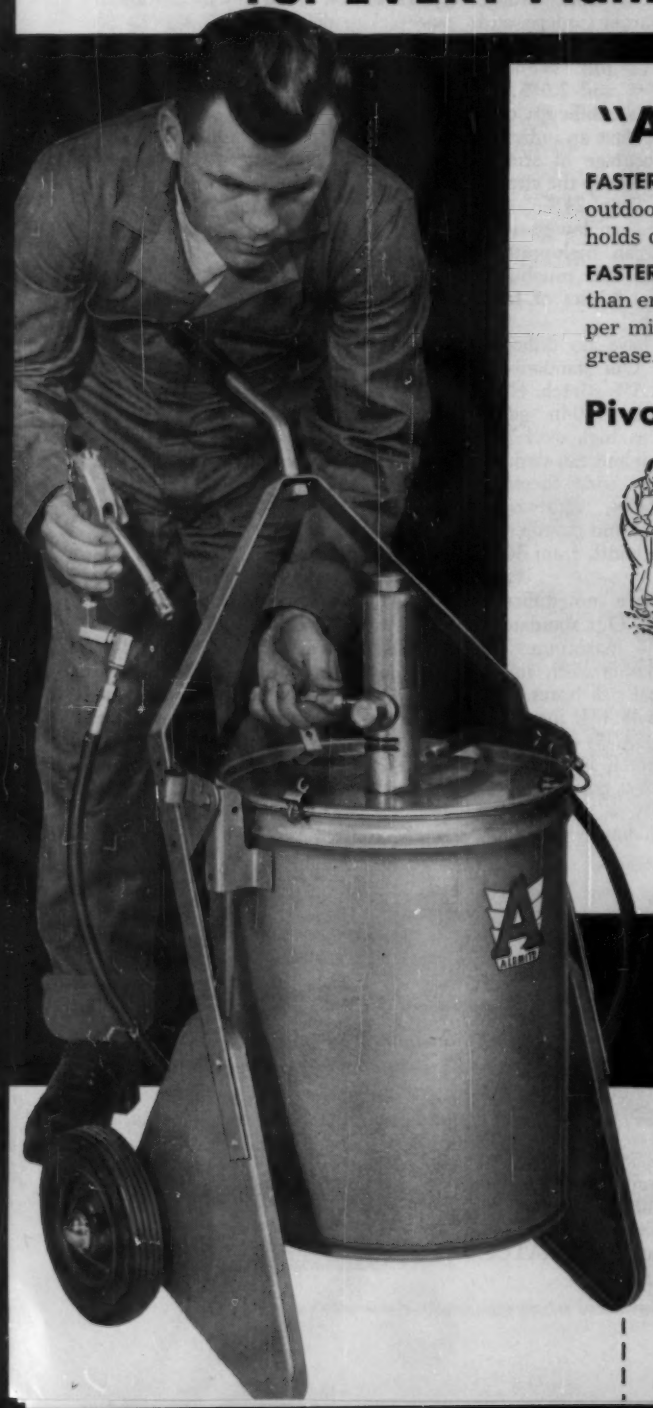

"AIR-POWERED 711-A"

FASTER—because it's easier to handle! Saves lubrication time outdoors or indoors—anywhere in the plant. Pivot-swing dolly holds container upright at any pulling angle.

FASTER—because exclusive, newly designed pump packs more than enough power for every job. Delivers 14½ oz. of gun grease per minute at 70°F. Holds 25-, 35-, or 50-lb. pail—or 70 lbs. of grease. Dynamic primer assures positive priming.

Pivot-Swing Dolly For Easy Moving...

Electric-Powered "Porta-Kart"
Only 18" wide. Easily moves through narrow aisles. Capacity, 12 pounds. Delivers 13 oz. of pressure gun grease per minute. Automatic switch shuts off motor when 5,000 lbs. of pressure is built up. *Model 7182-B.*

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Loom Let-Off

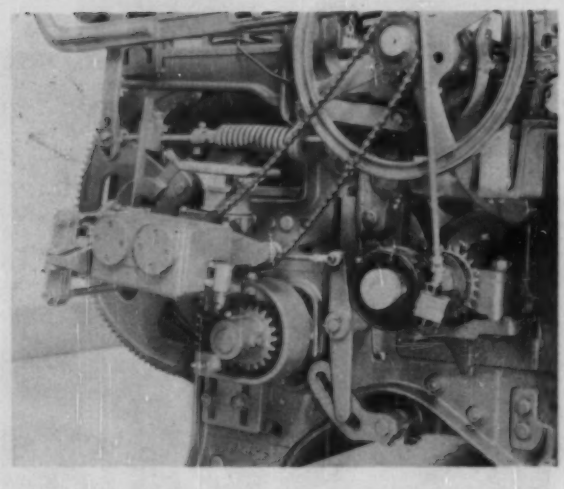
A let-off called Tru-Tension has been developed by Draper Corp., Hopedale, Mass. The let-off is designed to give a constant rate of yarn delivery to the loom and at the same time maintain a constant tension on the warp yarns.

The let-off is provided with a positive and continuous drive and a compensating friction transmission. These two features provide automatic control of let-off speed and yarn tension from full to empty beam.

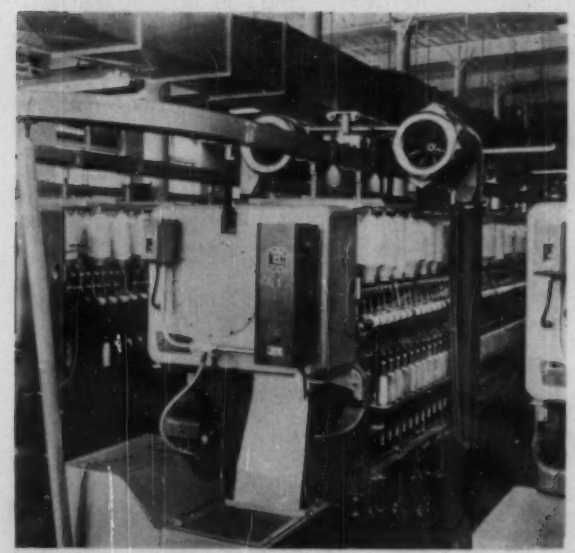
The let-off is chain driven, and a wide pick range is possible by changing either or both of the driving sprockets. For example, by changing sprockets, a pick range of from 17 to 106 ppi. can be obtained with a 26-in. beam and from 17 to 125 ppi. with a 22-in. beam.

A hand wheel permits disengaging of the transmission and manual adjustment of the yarn beam when necessary. An adjusting knob provides for setting proper tension on the yarn at the beginning of a new warp. The let-off then should automatically control the tension, within a few grams, until the warp has run out.

The Tru-Tension let-off is available for X-2, XD, and XP Draper looms.



Circle T-1 on Reader-Service Card



Frame and Room Cleaner

Frame-, room-, and self-cleaning functions are combined in the Cross-Jet cleaner announced by Bahnson Co., Winston-Salem, N. C.

The compact, self-propelled unit operates at high speeds on a frame-mounted track with shielded electric conductors. Four rotating nozzles clean the creel section of the frame, walls, ceilings, and fixtures. Two fixed flexible nozzles with multiple orifices clean everything below the creel.

Circle T-2 on Reader-Service Card

Cotton Opener-Cleaner

A cotton opener-cleaner, described at the last Cotton Research Clinic [TEXTILE WORLD, May, '57, p. 122] is now available for license from the Secretary of Agriculture on a royalty-free basis.

The machine, developed by the USDA Southern Regional Research Laboratory, operates at high cleaning efficiency with about half the lint loss of cleaners commonly used. Four opening-blending cylinders and two cleaning cylinders, similar to a card lickerin, clean the cotton. Waste removed contains about 86% trash.

Engineering drawings and technical specifications can be obtained by licensees without cost from the Southern Utilization Research and Development Div., USDA, Box 7307, New Orleans 19, La.

Circle T-3 on Reader-Service Card

Flocking Machine

A self-contained air supply is featured in an improved flocking machine produced by Progressive Equipment Co., 8625-29 Mackinaw at Grand River, Detroit 4, Mich.

A ball-bearing roller-chain drive, a totally enclosed motor, and a nylon spiral-feed brush are new in this model. The fan motor has a separate overload protector, and flock volume is controlled by a flexible steel baffle.

The machine is mounted on two casters and occupies 15x19 ins. of floor space.

Circle T-4 on Reader-Service Card

Pile-Fabric Shipper

A combination corrugated and solid-fibre box for shipping delicate pile fabrics has been developed by Kieckhefer-Eddy Div., Weyerhaeuser Timber Co., Delair, N. J.

The unit, called a Plush-Pak, will carry up to 24 layers of plush or velvet fabrics on hooks set into the cross pieces mounted on the ends.

The package is expendable and eliminates return expense. Shipping costs are cut because of its light weight. Each layer of fabric is separated for maximum protection.

Circle T-5 on Reader-Service Card

Fiber-Measuring Instrument

An instrument for measuring the linear density or denier of single fiber or strands of fiber has been developed by G. F. Bush Associates, Box 175, Princeton, N. J.

Called GFB Fiber Vibrascope, the instrument measures fibers by vibrating a preselected length of variably weighted fiber at constant frequency. Range is about 1 to 100 den. A special model is available to measure fibers to 1,600 den. Direct readings are accurate within 1%.

Circle T-6 on Reader-Service Card

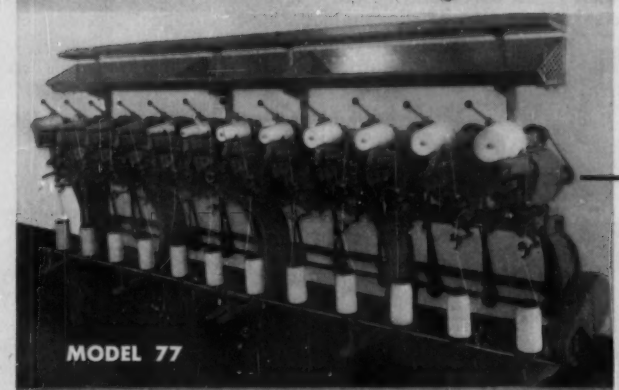
FOSTER MACHINES *for winding*

TUFTED TEXTILE YARNS

One is Best Suited For Your Requirements

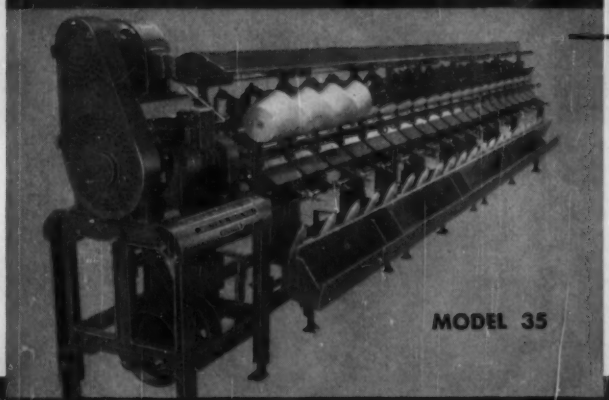
MODEL 78

MODEL 78 — This machine (built in 5 spindle units) produces 8" to 10" traverse, precise wind cones up to 16" in diameter and weighing up to 35 lbs. each. Ball bearing spindles are individually motor driven at speeds up to 800 R.P.M. It has controlled slow start and spindle brake, heavy duty belt gainer with hand wheel adjustment (or positive gear gainer, if desired), positive size stop, electric drop wire and expansion type cone holders, with handle control, for easy donning and doffing. Will wind overend from bobbins or from swifts, reels or unrolling devices.



MODEL 77

MODEL 77 — Built in 6 spindle sections, produces 4" to 8" traverse, precise wind cones up to 10" in diameter and weighing up to 14 lbs. each. Ball bearing spindles, individually belt driven by one motor, run at speeds up to 1100 R.P.M. It has a positive, long wearing package brake and positive solid tapered pulley belt gainer. It will wind overend from bobbins, or from swifts, reels or unrolling devices. 90° build-up from face of cone prevents broken back or under-wound packages.



MODEL 35

MODEL 35 — Built in units of 10 spindles to 80 spindles. Produces open wind 8" traverse cones up to 11" in diameter and weighing up to 9 lbs. each. Winding speed from bobbins is from 180 to 250 Y.P.M. and from skeins 100 to 150 Y.P.M. Standard taper cone holders are 7° 22½′ and 3° 51′. Package brakes and disc waxing attachments are extra. Can be equipped to wind from swifts, etc. as well as from bobbins. Write for Model 78 bulletin A-98A, Model 77 bulletin A-99, or Model 35 bulletin B-46A.

FOSTER MACHINE COMPANY

Westfield, Massachusetts, U.S.A.

Southern Office, Johnston Bldg., Charlotte, N. C.
Canadian Representative, Ross Whitehead & Company Limited, 1475 Mountain St., Montreal, Que. and 35-37 King St., Toronto, Ont.

European Representative, Muschamp Textile Machinery Limited, Keb Lane Bardsley, Oldham, England

Showing Relative Size and Type of Wind

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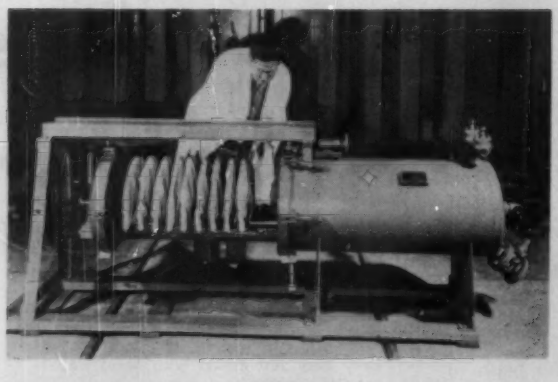
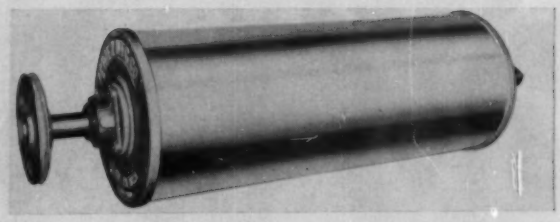


Filter-Bag Fabric

Dynel fabrics are used in filters produced by Industrial Filter & Pump Mfg. Co., Chicago, Ill. The filters are used for removing impurities in mercerizing caustic. The Dynel filter bags resist the action of the alkaline solutions and can be expected to give a year's service. The filters are designed so that the bags may be easily shipped over the filtering plates, which are run out on tracks.

Circle T-7 on Reader-Service Card



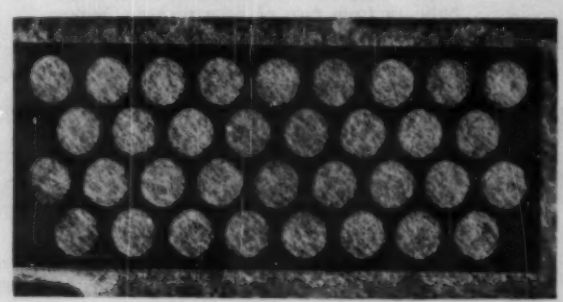
Slurry Drum Removes Tramp Iron

A permanent magnetic drum for automatic separation of tramp iron in slurries has been announced by Eriez Mfg. Co., Erie 6, Pa. The drum has features to overcome bearing failures from the action of liquids and abrasives in the slurry.

The drum is a revolving cylindrical shell enclosing a bank of stationary permanent magnetic castings that cover slightly more than 180 degrees of the drum circumference. In operation, the drum is installed in a chute that directs the flow of slurry into the drum's magnetic field.

Tramp iron present is forced to adhere to the revolving shell until it's carried out of the magnetic field. Then it drops into a tray.

Circle T-8 on Reader-Service Card



Simplified Nep Counter

A simplified nep-counting template has been introduced by Shirley Developments Ltd., 40 King St. W., Manchester 3, England.

The actual neps in the web are not counted. Instead, a lightweight plastic template containing a number of round holes is placed on the web sample and the holes where neps show are counted.

For example, three areas in the photo show neps. A simple conversion table indicates that the three holes with neps represent nine neps per 100 sq. ins. of web.

Circle T-9 on Reader-Service Card

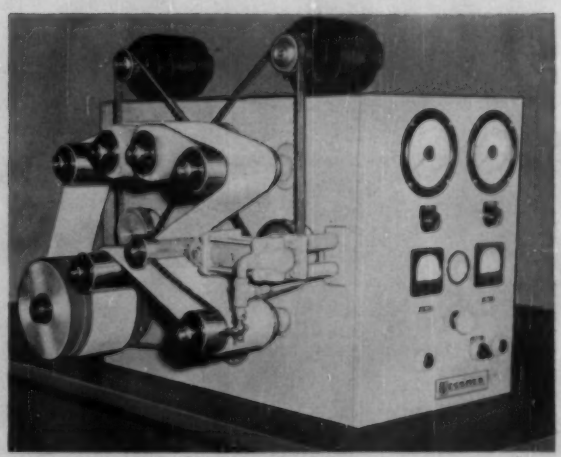
Laboratory Napper

A desk-top napping machine that can be used to study napping effects on all types of fabrics has been introduced by David J. Gessner Co., 41 Fremont St., Worcester 3, Mass.

All adjustments for napping power on the pile roller and the counter-pile roller, as well as cloth speed and tension, can be made accurately through the control panel.

Worker rolls may be quickly interchanged to provide different types of clothing for different effects. The unit provides an opportunity to set up napping procedures that can be duplicated in the plant.

Circle T-10 on Reader-Service Card

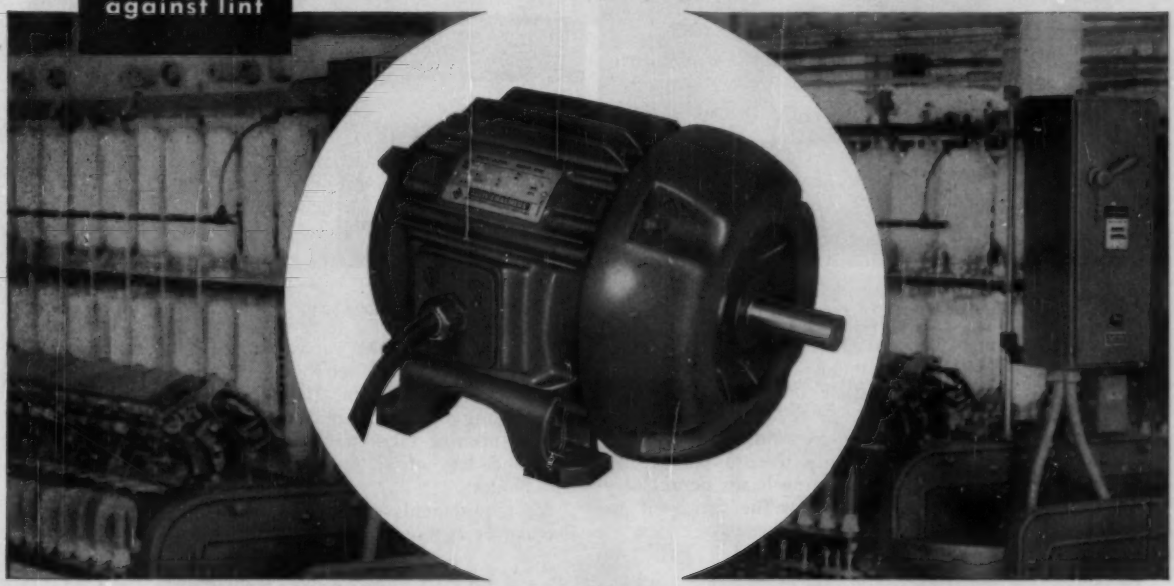


Allis-Chalmers announces...

NEW totally-enclosed textile MOTOR

This modern, deep-rib frame has become a famous sign of high cooling efficiency in Allis-Chalmers TEFC motors. NOW — its tough dependability has been combined with lint-free features to make this motor just right for textile applications.

MORE protection against lint



Here are only a few of the TEFC motor features:

Ribbed Frame
Lint won't stick on this frame. Free-flowing air continually blows ribs clean.

Fan Bowl
Has no grid to collect fly and lint.

Optional Design
Permits placement of fan at shaft or front end of motor, and choice of conduit box or cable and fitting.

Find out more from your A-C sales office or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin. Ask for Bulletin 51B6055C.

A-C ALLIS-CHALMERS

A-5289

ALLIS-CHALMERS

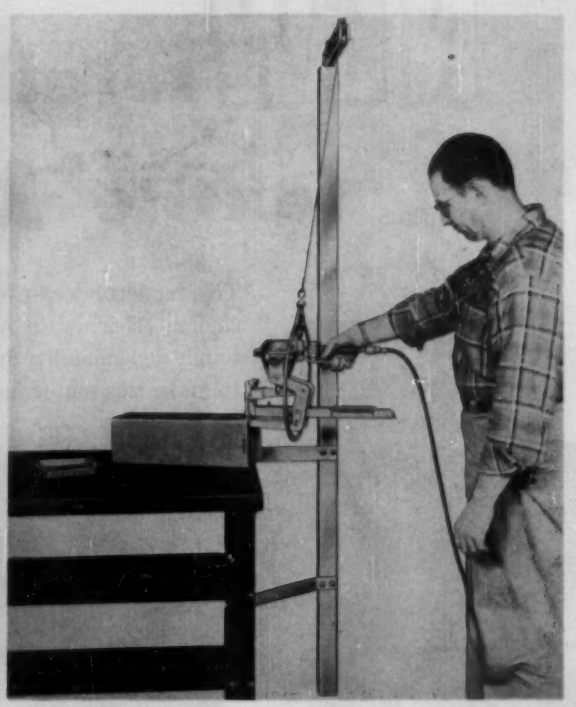
For more data, write this page number on Reader-Service card. →

Yarn-Tension Meter

An electronic meter that measures yarn tension within the range of 0.025 to 15.0 grams is available from Dawe Instruments Ltd., Uxbridge Rd., Ealing, London, W. 5, England.

Measurement with the meter does not affect normal operations, and tension changes up to 200 per second can be measured. The small measuring heads permit easy installation, and provision is made for the fitting of an external recorder or integrator.

Circle T-11 on Reader-Service Card



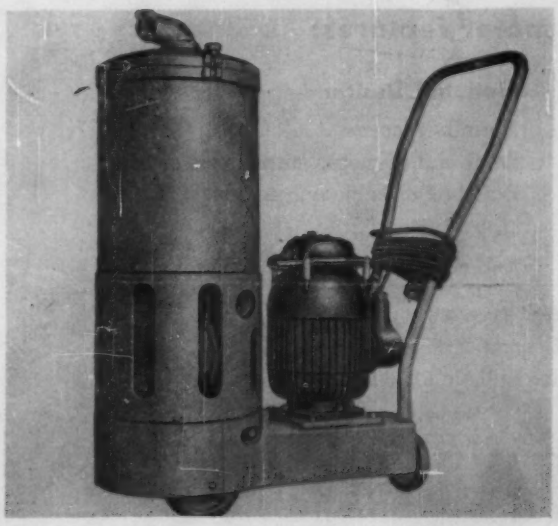
Heavy-Duty Stapler

A pneumatic stapler capable of stapling tough fibreboard has been developed by Container Stapling Corp., P. O. Box 247, Herrin, Ill. Other materials such as soft matting and burlap can be stapled with the machine.

The machine takes staples with crowns up to 1⅛ ins. long and legs of ½, ⅝, or ¾ in. The magazine holds 100 staples.

Air requirements are 60 to 100 psi. The stapler air line can be fastened into any air line below 100 psi.

Circle T-12 on Reader-Service Card



Suction Cleaner

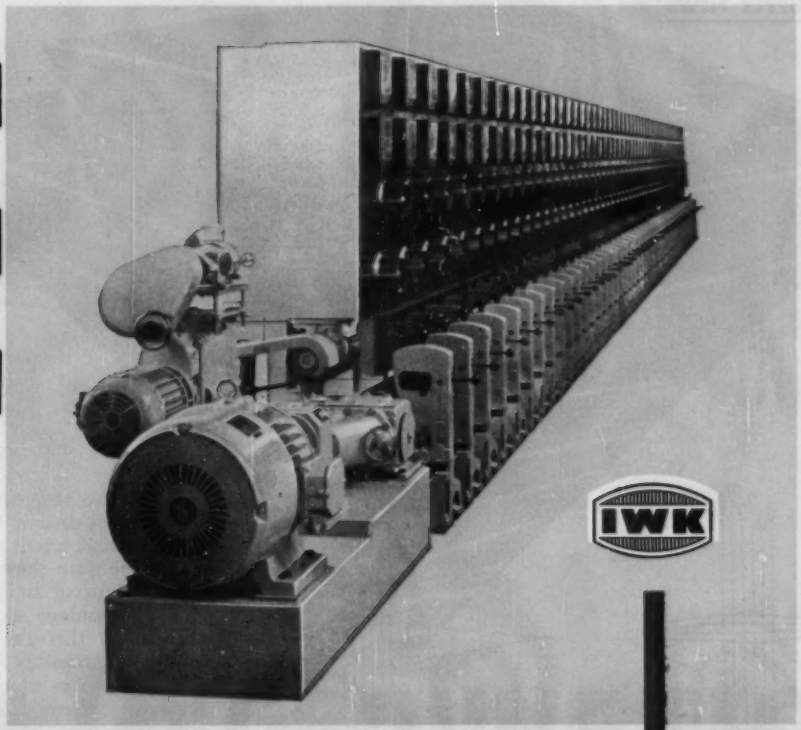
A portable suction cleaner for textile machinery is announced by Meccanica A. Sibilia, Castelletto Ticino, Italy.

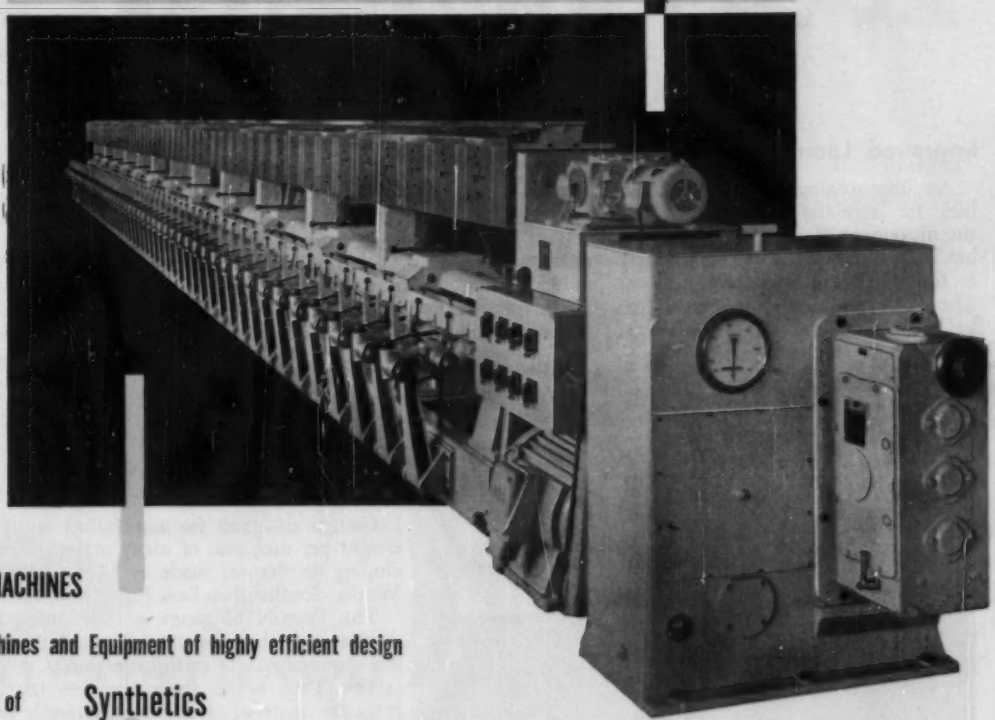
It is possible to use flexible hoses and nozzles of small diameter and of any length with the cleaner.

With the suction cleaner, it is possible to clean very high places and places that are some distance from the apparatus. Ceilings, beams, high windows, shelves, and gutters are easily cleaned by suction.

The cleaner can also be used for blowing. It produces a strong jet of air that is particularly useful for cleaning electric motors, air ducts, and steam-boiler pipes.

Circle T-13 on Reader-Service Card





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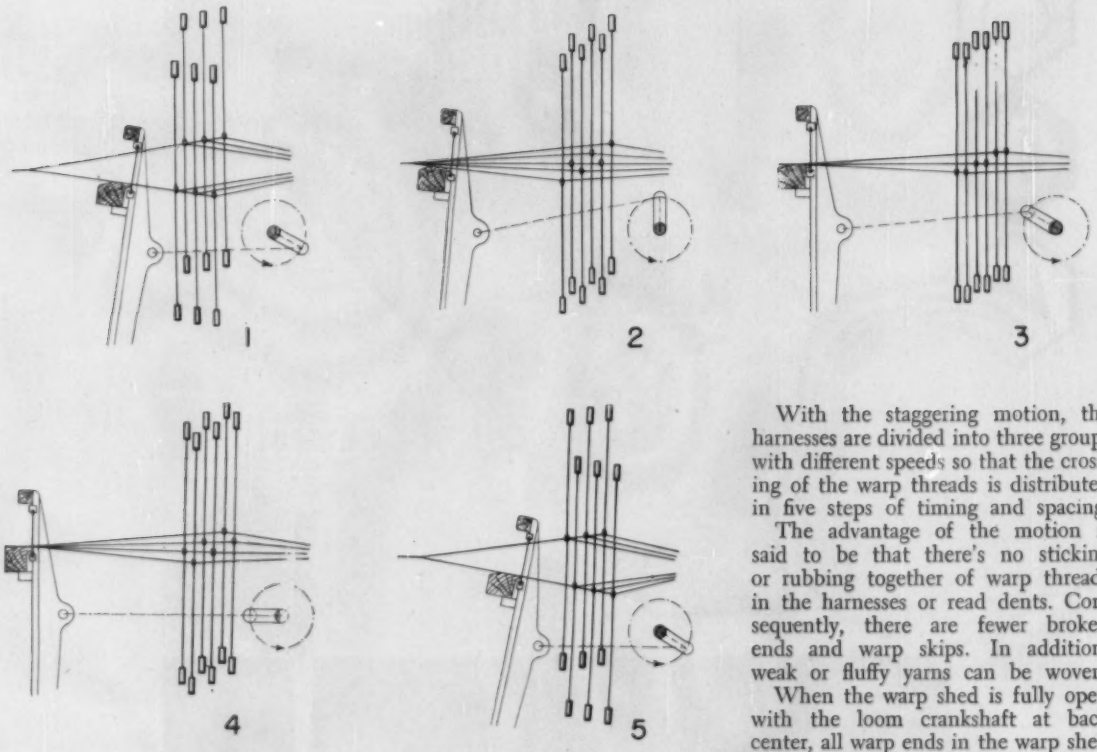


Improved Loom Dobby

An improvement for Staubli dobbies for accelerating and retarding the movement of individual harnesses has been announced by Staubli Bros. & Co., Horgen-Zurich, Switzerland. The dobbies are sold in the U. S. by H. J. Theiler Corp., 22 Ashmont Ave., Whitinsville, Mass., and 727 Montgomery Bldg., Spartanburg, S. C.

The harness-staggering motion permits each harness to have its own individual accelerated, normal, or retarded motion for various cloth constructions and drawing-in designs.

With the staggering motion, the harnesses are divided into three groups with different speeds so that the crossing of the warp threads is distributed in five steps of timing and spacing.

The advantage of the motion is said to be that there's no sticking or rubbing together of warp threads in the harnesses or read dents. Consequently, there are fewer broken ends and warp skips. In addition, weak or fluffy yarns can be woven.

When the warp shed is fully open with the loom crankshaft at back center, all warp ends in the warp shed are parallel, as shown in Position 1 of the accompanying sketch. The ends remain parallel as they start moving until the crankshaft reaches Position 2. Then the ends move to Position 3 as the crankshaft continues forward. Position 4 shows the ends as the crankshaft starts backwards. Position 5 shows the new parallel shed at back center again.

Circle T-14 on Reader-Service Card

Nucleonic Gauge

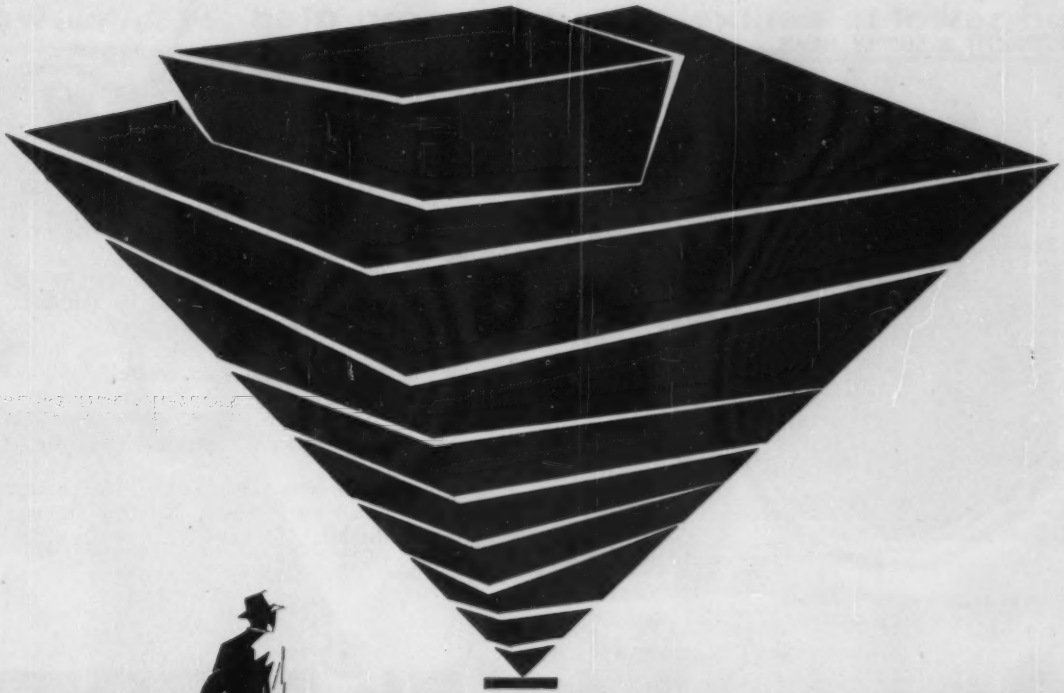
Gauges designed for noncontact measurement of the weight per unit area of many materials in sheet form, including textiles, are made by Ekco Electronics Ltd., Ekco Works, Southend-on-Sea, Essex, England.

The Type N565 gauge is a measuring head and an indicator unit that can be calibrated directly in terms of any required weight or thickness units.

The Type N582 gauge removes the measuring head from the material at half-hour intervals and carries out a series of tests on itself, correcting errors caused by temperature changes, dust, and oil deposits that have occurred during the previous half hour.

Automatic scanning facilities that are also available permit inspection of the material at alternative positions across its width.

Circle T-15 on Reader-Service Card



THE GROUND FLOOR

Mr. Engineer, here's your chance to get in on the "ground floor" with a company that has grown to leadership in just five short years.

Already in its sixth major expansion in five operating years, Chemstrand's greatest growth still lies ahead! Our company's field of chemical-textile fibers is young . . . but growing rapidly. Our industry calls for an 8-fold increase by 1975!

At Chemstrand, right now, there are a number of creative engineering projects just waiting for capable men to put them into action. The men who join us today will be the experienced, sought-after "pioneers" of tomorrow.

We are asking *you* to join us . . . on the "ground floor" at Chemstrand!

WRITE TODAY

TECHNICAL PERSONNEL MANAGER, Dept. TW-12
The Chemstrand Corporation, Decatur, Alabama

Gentlemen:
It is my understanding that you need for immediate employment graduate engineers in various fields, particularly chemical, mechanical, industrial, textile and instrument engineering.
I am a graduate_____engineer.
Please send me information concerning the ground floor opportunities at Chemstrand.

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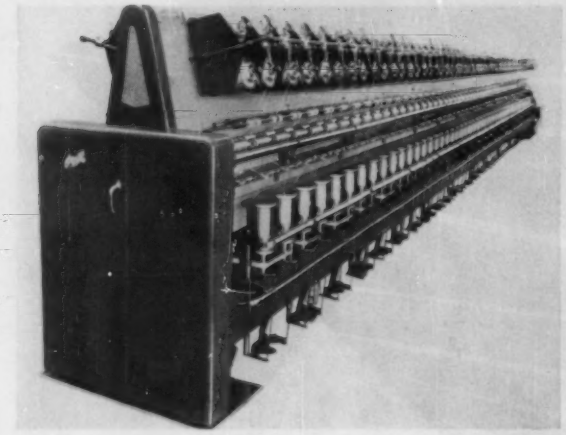
CHEMSTRAND

THE CHEMSTRAND CORPORATION, DECATUR, ALABAMA

TOMORROW'S BIG DECISIONS WILL BE MADE **by the men who act today...**



Twister Cabler

A twister cabler for rayon and nylon tire cords has been developed by John Bright & Bros. Ltd. and Platt Bros. (Sales) Ltd., Oldham, England. The machine is double sided and is built in two decks to embody the uptwisting and ring-twisting principles.

The uptwister ply-twisting spindles carrying the double-flanged supply packages are located on the top deck. The ends are drawn through flyer eyes, lappets, guides, and delivery rolls to the ring and traveler cabling spindles on the bottom deck and wound on double-flanged delivery bobbins.

The standard machine is 9-in. gauge with 6-in.-dia. rings and produces packages containing 4 to 5 lbs. of finished cord.

Maintaining the same gauge, 9-lb. delivery packages can be accommodated by increasing the ring diameter and lengthening the lift.

Circle T-16 on Reader-Service Card

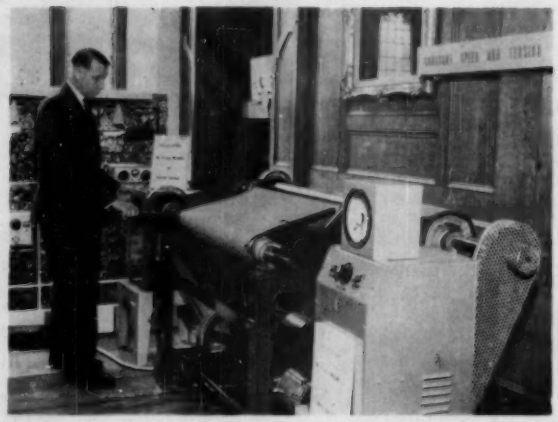
Controlled Motor Unit

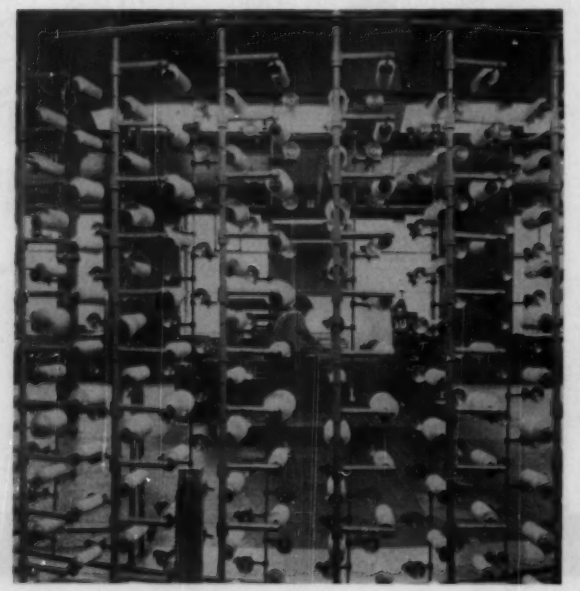
A ½-hp. controlled motor unit called the Magamp is available in four categories from The English Electric Co. Ltd., Marconi House, Strand, London, W.C.2, England.

The units can be obtained for unidirectional speed control, bidirectional speed control, low tension control, and high tension control.

An example of the applications of the controls to textiles is in cloth winding when one unit acts as a speed controller and another unit acts as a tension controller.

Circle T-17 on Reader-Service Card



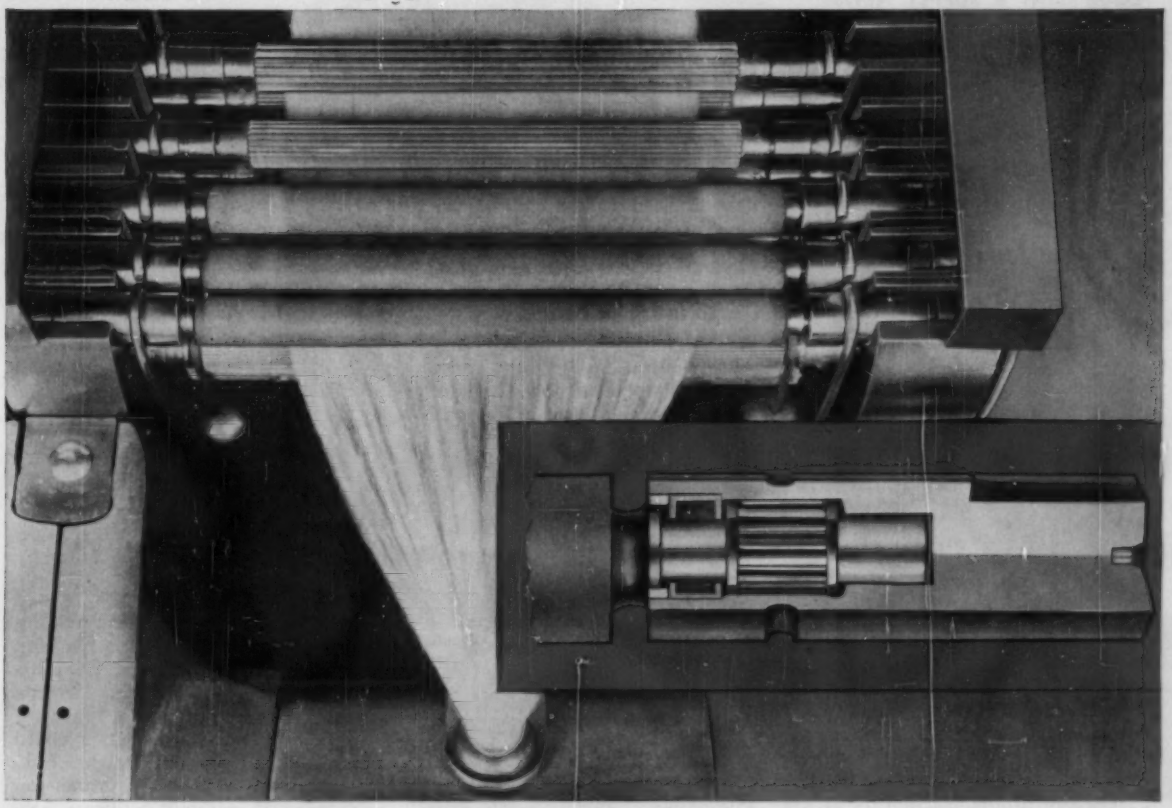


Half-Moon Creel

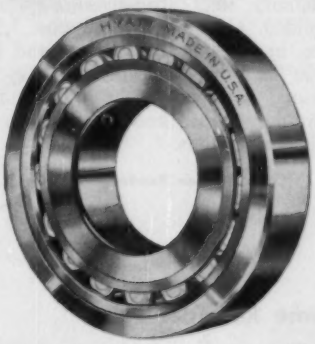
The Crowther-Garnett half-moon creel made by Crowther Ltd., Britannia Works, Thurmaston, Leicester, England, automatically stops winding and shows a warning light over the appropriate bobbin when a yarn break occurs.

Circle T-18 on Reader-Service Card

How HYATTS help produce better textiles at lower cost:



DRAWING



TOP ROLLS EQUIPPED WITH HY-ROLLS ASSURE GREATER SLIVER UNIFORMITY

Let's take a look at textile quality from an angle that's often overlooked—the bearings your machinery turns on. Let's start with a drawing operation, because you've got to begin with uniform sliver to finish with good cloth. That means top rolls that turn *free and true*—a perennial problem with old-fashioned plain bearings that often bind or allow excessive play, but a cinch with precision-built HYATT Hy-Rolls! What's more, HYATTS prevent costly oil leaks, save up to 90% on lubrication and up to 40% on power. So insist on HYATT Hy-Rolls when you modernize or replace *any* textile machinery—*it pays big dividends in the long run!* Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.

STANDARDIZE ON HYATTS FOR:

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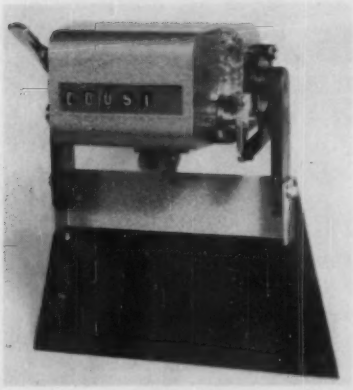
LOOMS • DRY CANS • TENTER FRAMES • SHEARS • WASHERS
FULLING MILLS • TEXTILE MACHINERY MOTORS

THE RECOGNIZED LEADER IN CYLINDRICAL BEARINGS

GM FORWARD FROM FIFTY

HYATT HY-ROLL BEARINGS FOR TEXTILE INDUSTRY

For more data, write this page number on Reader-Service card. →

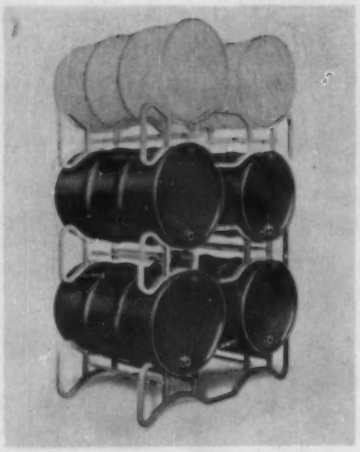


Conveyor Counter

A counter, specially designed to count articles passing along a conveyor belt, has been announced by Trumeter Co., 38 W. 32nd St., New York 1, N. Y. A minimum space of 3 ins. must be between the articles.

A slight movement of the flap on the counter operates the counter, and there is enough travel to accommodate articles of various heights. The unit operates in either direction and is supplied with quick-lever or detachable-key resetting action.

Circle T-19 on Reader-Service Card



Steel Rack for Drums

A steel rack for the handling and stacking of loaded or empty drums with standard fork lift trucks has been announced by Pressed Steel Div., Republic Steel Corp., 6100 Truscon Ave., Cleveland, Ohio.

The drum rack supports two loaded drums to any practical height. Individual drums or pairs of drums can be removed without excessive handling of the other drums in the stack. The drums can be lifted from the front, back, or either side.

Materials in the drums can be drawn out of the bungs without disturbing other drums. Because drums are separated in the racks, inventory can be taken quickly.

The racks are made of heavy-gauge channel steel strongly braced and welded. One unit will support 7,500 lbs. in 18-gauge steel drums and 14,000 lbs. in 16-gauge drums. They are coated with enamel to prevent rust and are shipped knocked down in individual cartons.

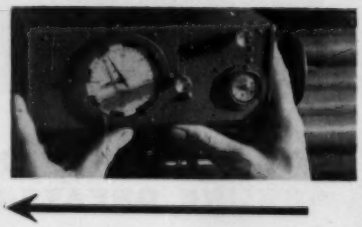
Circle T-21 on Reader-Service Card

Roll-Speed Tester

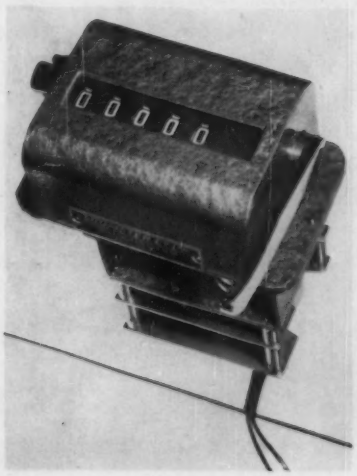
A testing instrument that measures the percentage difference in the surface speeds of drafting rolls has been announced by Shirley Developments Ltd., 40 King St. W., Manchester 3, England.

Purpose of the machine is to (1) establish and maintain the best drafting conditions, (2) determine the best roll settings, and (3) detect roll slippage.

Relative speeds of two lines of rolls can be measured where small break drafts are used. The instrument is especially useful when settings for new mixes have to be changed quickly.



Circle T-20 on Reader-Service Card



Timer Unit

A timer unit consisting of a predetermined counter with a quick reset is available from Trumeter Co., 38 W. 32nd St., New York 1, N. Y. The unit is coupled to a synchronous motor, which suits most voltages.

The unit can be supplied to record in hours, hours and $\frac{1}{10}$ hrs., or minutes up to 99,999 hrs. with a Senior counter. A machine can be stopped automatically at a specified time to check output or to insure that it is run at peak efficiency.

Circle T-22 on Reader-Service Card

Time Recorder

The actual production time of any machine is recorded by an instrument built by Moses Electronics Co., 330 Locust St., Hartford, Conn.

The unit is actuated by machine vibrations, which are translated into electrical impulses and recorded on a chart.

Circle T-23 on Reader-Service Card

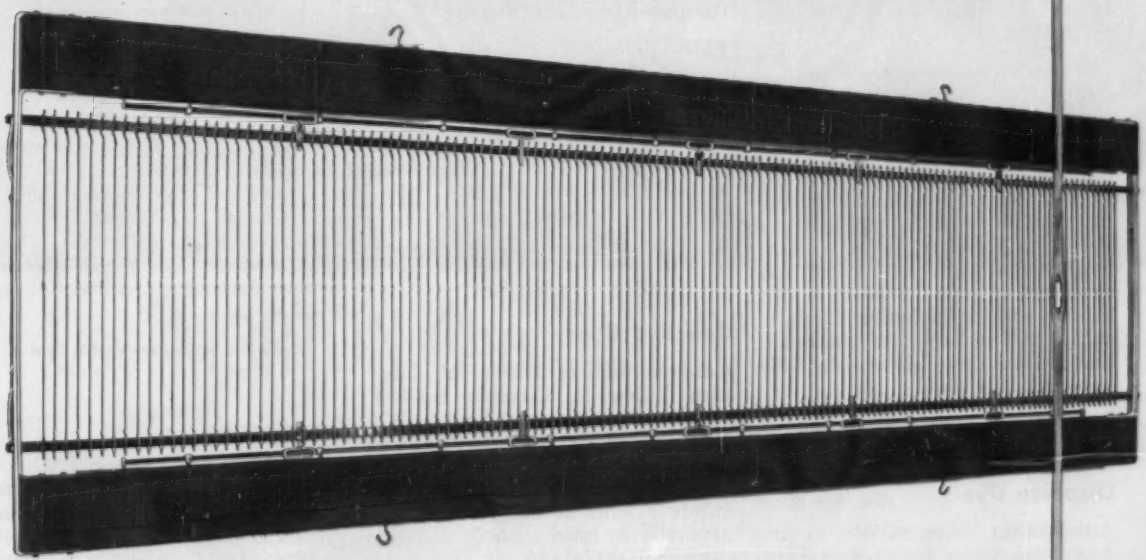
CONTINUED ON PAGE 214

Quality WEAVING

NEEDS

Stehedco

HARNESS FRAMES & HEDDLES



Stehedco Harness Frames and Heddles Guarantee You The Quality You Need

Stehedco heddles are expertly made of finest quality spring steel, highly polished to gently handle your most delicate yarns, and designed to give you longer, trouble-free production than ordinary heddles.

Stehedco harness frames are carefully made of selected lumber, straight and knot-free, to meet the most exacting standards. Braces and hardware are designed to give smooth, consistently fine performance. Tempered steel rods give added life and more efficient operation.

Steel Heddle Sales Engineers, experts of the textile industry, are constantly alert to the needs of the textile mills, and Stehedco products are first with the latest improvements—after being field tested in large scale operations.

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GREENVILLE, S.C.
Southern

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Other Plants and Offices: Granby, Quebec, Canada • Lawrence, Mass. • Greensboro, N.C. Atlanta, Ga. • Textile Supply Co., Dallas, Texas • Albert R. Breen, Chicago, Ill.

NEW DYES AND CHEMICALS

Scouring Agents

Ban Scour . . . removes coning oils and dirt in low-temperature prescouring operations applied to bulked or textured yarns. It may also be used in dyeing and final scouring.

Scourpen 1611 . . . nonionic surfactant designed for scouring Shetland, lamb's wool, cashmere, and wool-blend sweaters. The product is slightly acid and will not change yarn colors. Richmond Oil, Soap & Chemical Co., 1041-43 Frankford Ave., Philadelphia 25, Pa.

Circle D-1 on Reader-Service Card

Surfactant

Protowet XL . . . described as a sulfated fatty acid, is recommended for all phases of textile processing where wetting or rewetting is a problem. Suggested applications include pretreatment of fabrics difficult to dye, as an ingredient in slashing formulas, and as an absorbent finish for toweling. Proctor Chemical Co., Inc., Salisbury, N. C.

Circle D-2 on Reader-Service Card

Disperse Dye

Artisil Direct Yellow SCW . . . produces warm yellow shades of good fastness to light, washing, and sublimation on acetate, Arnel, nylon, or Dacron fabrics. The color is also fast to seawater and perspiration. Sandoz, Inc., 61-63 Van Dam St., New York 13, N. Y.

Circle D-3 on Reader-Service Card

Cationic Softener

Rosoft . . . gives a soft, luxurious finish on Shetland, lamb's wool, cashmere and wool-blend sweaters. The product is resistant to yellowing up to 300° F. Richmond Oil, Soap & Chemical Co., 1041-43 Frankford Ave., Philadelphia 25, Pa.

Circle D-4 on Reader-Service Card

Tarnish-Resistant Binder

TMB-5200 . . . for textile printing binds bronze or aluminum pigments to fabrics to produce exceptionally brilliant prints. The product does not discolor the metallic pigments even under accelerated ironing tests. Kent Printing Ink Corp., 39 Powerhouse Rd., Roslyn Heights, N. Y.

Circle D-5 on Reader-Service Card

Reactive Dyes

Cibacron Brilliant Yellow 3G, Cibacron Yellow R, Cibacron Brilliant Orange G, Cibacron Scarlet 2G, Cibacron Brilliant Red 2B, Cibacron Rubine R, Cibacron Blue 3G, and **Cibacron Turquoise Blue G** . . . constitute a series of fiber-reactive dyes applicable by usual methods that produce brilliant shades of very good fastness to light, washing, and crocking on cellulosic fibers and silk. The colors work well in printing processes with many other classes of dyes. Ciba Co., Inc., 627 Greenwich St., New York 14, N. Y.

Circle D-6 on Reader-Service Card

Acid Dye

Sulfonine Navy RWL Pat. . . . produces dischargeable blue shades on silk or wool that possess very good fastness to light, washing, perspiration, and water. Wool dyeings are fast to acid milling and cross dyeing and will withstand long periods of boiling without shade change. Sandoz, Inc., 61-63 Van Dam St., New York 13, N. Y.

Circle D-7 on Reader-Service Card

Silicone Softener

Zacone . . . produces true solutions that are resistant to heat, salt, and dye fixatives. The softener is suitable for use with all types of resin finishes and increases tear strength, crease-recovery angle, and abrasion resistance in resin-finished cotton goods. Zimmerman Associates, Guilford College, N. C.

Circle D-8 on Reader-Service Card

Dye Carrier

Cyanatex Dyeing Assistant EM . . . improves dye diffusion into hydrophobic fibers in jig- or beck-dyeing processes. The product is relatively nontoxic, works over a wide pH range, and does not affect lightfastness of colors. Supplied in emulsion form, the carrier requires no added acids; strong alkaline scours are not needed for removal after dyeing. American Cyanamid Co., Bound Brook, N. J.

Circle D-9 on Reader-Service Card

Improved Orlon-Bleaching Routine

Recent production of Orlon can be bleached to good whites by a method developed by the Technical Service Section, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

The method is based on an acid scour combined with the addition of fluorescent white dyes and a blue tint. The whites are superior and more resistant to yellowing than those produced by more-vigorous oxidizing agents. An added advantage is that the process does not affect rubber and gives off no hazardous fumes.

The procedure is as follows:

Set bath at 100 to 120° with:
2.0% owg. Duponol RA
3.0% formic acid (90%)
0.002% Latyl Blue RL
0.50% Tinopal ANA or Uvitex U
10.0% calcined Glauber's salt

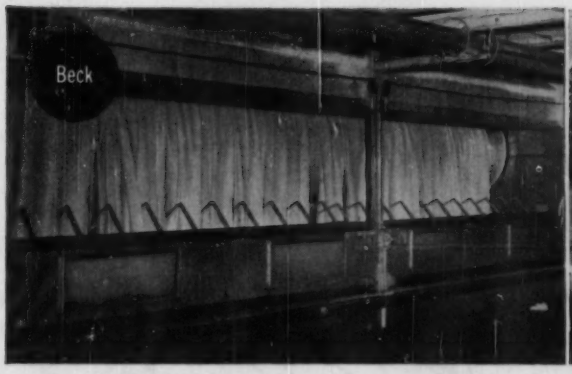
Bring to the boil and hold for 1¼ hrs.

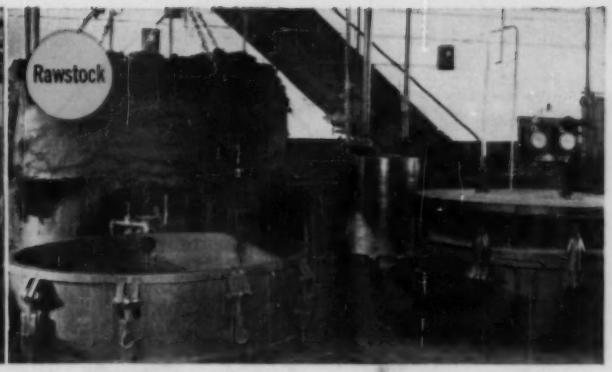
Cool the bath slowly and rinse.

Finish the goods as required.

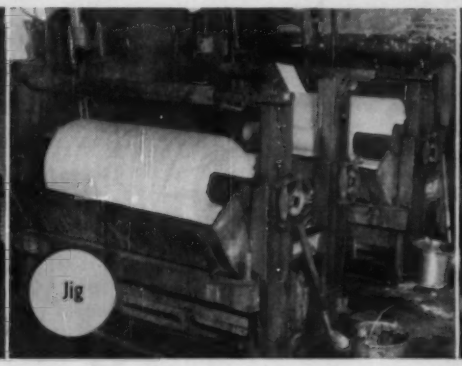
If the goods are very dirty or oily, they should be given a prescour before the bleaching process, but generally the job can be done in one run.

Variations in the amounts of dyes added can be made to suit the exact shade of white required.

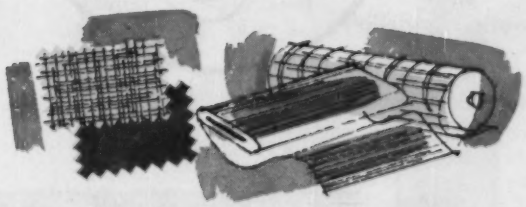




Whenever an all sodium salt* is required for dyeing...



Use MORTON Chemical Grade '999' Salt



*Morton 'Chemical Grade 999' is the all sodium salt (sodium chloride and a trace of sodium sulphate). It contains no calcium compounds that can cause cut threads, off-shading, and costly shutdowns.

Morton 'Chemical Grade 999' Salt can help you to get softer finishes, more even shades, greater color intensity. That's because Morton 'Chemical Grade 999' is a low cost, high purity evaporated salt, free of objectionable calcium and magnesium compounds.

Morton 'Chemical Grade 999' is more than 99.9% pure sodium chloride, recommended for use whenever commercial calcium-free salt is required.

Available in 100-lb. bags or bulk, 'Chemical Grade 999' is specifically recommended when direct salting is used in dyeing rawstock, package, beam, beck or jig with either sulphur, direct, or naphthol dyes.

☐ Please send me more information about Morton 'Chemical Grade 999' Salt.

☐ I would also like to know how much I can reduce calcium and magnesium content by using Morton 'Chemical Grade 999' Salt. Please have a Morton Brine Engineer call on me to explain the benefits of using 'Chemical Grade 999' Salt.

Name_____

Title_____

Company_____

Street Address_____

City_____ Zone_____ State_____

MORTON SALT COMPANY

INDUSTRIAL DIVISION

Dept. TW-12, 120 So. LaSalle Street, Chicago 3, Illinois

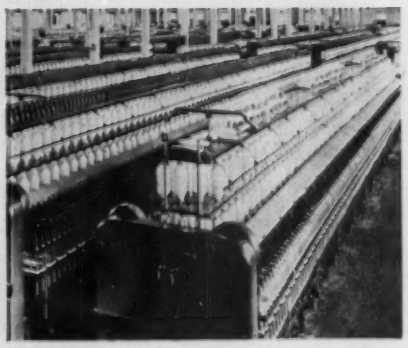
For more data, write this page number on Reader-Service card. →

Feels so good when you stop ... specifying substitutes

Are ends down and loss of production causing spinning room headaches? Then it will pay you to find out why smart textile men specify SKF-Equipped Spindles... why they will not accept a substitute... why there are more than 40 million SKF-Equipped Spindles in operation in the world today.

It's a known fact that the built-in dependability of these high quality SKF products minimize costly shut-down and steps up both quality and production of yarn.

Insist on SKF Roller Bearing-Equipped Spindles for your mill—the only anti-friction bolster that has served the industry for over a quarter of a century. 7785



EVERY TYPE—EVERY USE

SKF®

Ball Bearings
Cylindrical Roller Bearings
Spherical Roller Bearings
Tapered Roller Bearings (Tyson®)

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SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

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Do you need help on a technical problem? TEXTILE WORLD is at your service in helping solve problems in yarn manufacturing, weaving, knitting, dyeing, finishing, and other textile operations. A large staff of mill men, consultants, and other experts are available for authoritative answers. Send your problem to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

Combed Yarns Cost 8 to 15% More Than Carded Yarns

Technical Editor:

How much difference in cost is there between combed and carded yarns? (1341)

Coarse combed yarns are about 15% higher in price than the same size of carded yarns. Finer combed yarns cost about 10% more than carded yarns of the same number.

Here are comparative combed and carded yarns based on a raw-cotton price of 33¢ per lb.

Yarn No.	Carded (¢ per lb.)	Combed (¢ per lb.)
10	68.0	....
18	72.0	83.5
20	74.0	85.0
24	77.0	86.0
30	84.5	91.5
40	92.0	102.0

Only Sample Cards Are Made For Worsted Material

Technical Editor:

Since the meeting of the International Wool Federation, there has been a lot of talk about equipment for making samples of worsted material. We are interested in finding out about equipment that would process about 5 lbs. of material through to the combining stage. (1346)

Sample cards for worsted materials are made in the U. S., but we don't think these cards have an attachment to make sliver. There are no sample machines for gilling and combing.

We don't think that a good representative sample of sliver could be obtained from such a small amount of material because a number of slivers must be blended a few times on the various gill boxes to obtain a good top.

How To Dye and Twist-Set Nylon Carpet Yarns

Technical Editor:

In the article "Twist Setting Improves Nylon Carpet Yarns," [TEXTILE WORLD, July, '57, p. 82], the technique of simultaneously dyeing and twist setting is mentioned. Can you give us more information on this method? (1325)

The yarns are usually wound into skeins for the simultaneous dyeing and twist setting of carpet yarns. Dyeing is done at the boil or under pressure, depending on the equipment available and the effect desired. Raw-stock or skein-dyeing machines can be used.

Here is a typical procedure for dyeing nylon skeins under pressure in a raw-stock dyeing machine:

Load the relaxed skeins evenly by hand into the dyeing machine.

Wet out the skeins with 1% Capracyl leveling salt for 10 mins. at 180° F.

Flood rinse to reduce the temperature to 100° F. Add these chemicals in the correct order:

1. 4 oz. Depuma antifoam agent
2. 0.5% ammonium hydroxide
3. 2% Capracyl leveling salt dissolved in water
4. 4% Duponol D paste surface-active agent

The percentages are based on the weight of the goods.

Lower the temperature as much as possible before adding dyestuffs to get maximum levelness.

Dissolve the dyes, add them to the machine, and raise the temperature to 200° F. over 45 mins. Hold this temperature for 1 hr.

Add dilute acetic acid over the next 30 mins. if an exhausting agent is necessary.

Raise the temperature to 235° F., and hold for 30 mins.

Cool the dyeing by rinsing.

When pressure has been released, extract and dry.

Polished Cottons Are Not New

Technical Editor:

What are polished cottons, and how are they made? (1330)

The original polished cotton was probably glazed chintz. This finish has been run for years with starch and softeners, and a high glaze was put on with a friction calender. These fabrics, however, had no durability.

The Bancroft patents for mechanical durable effects followed. Glazed chintzes were then run with resin as a binding agent to give relatively durable high luster.

Resins and polyvinyl alcohol or resins and certain starch ethers, with the proper plasticizers and catalysts, were padded on print cloths. Either plain shades or printed patterns were made, and the goods were dried and given a friction calendering. The calendering was followed by a curing operation to set the finish and also set the high-luster effect.

The next polished cotton was the glazed friction-calender job, run in the same way but with the finish much softer. This finish was applied to dress goods, mostly on printed patterns on standard construction print cloths. Such fabrics were known as mirror cloths or polished cottons.

Today the term polished cottons covers any luster on any cotton fabric ranging from subdued silky luster effects to high-polished effects. Schreiner-calender finishes are included in the polished-cotton line.

Combed and carded print cloths and sateens and other fabrics are run on the Schreiner calender, which imparts a fine line and subdued silky luster to the goods.

On fabrics like twills and gabardines, the high luster is not obtained mechanically but is generally obtained by a high degree of mercerization or special handling in the mercerizing operation. In other cases, the goods may be run through a light calender of plain construction but with no friction or engraved line.

In most cases, these effects are the durable effects and are run similar to the glazed chintz. A resin finish is applied and dried and the cloth given some mechanical treatment, which may be a simple palmering operation. The goods are then cured to set the effect and bond the resin to the fiber.

Magnetic Tensions Apply Smooth Pressure

Technical Editor:

Can you give us more details of the magnetic tension device [TEXTILE WORLD, Dec., '56, p. 95]? (1328)

The magnetic tension device was developed to wind normal-twist man-made-fiber yarns to cut down end breakage by applying a smoother and more uniform tension to the yarn. The device reduces excessive tension peaks caused by a restricted delivery of the yarn from the package.

Tension is applied to the yarn by a loosely mounted tension leaf. This leaf is pressed against a nonmagnetic wear plate by the attraction of a small permanent magnet attached to the magnet bracket.

The magnetic tension is screwed to winders in place of the regular tension. Tension adjustments are made by moving the magnet towards or away from the magnetic wear plate.

4.0 TM Skein break (lbs.)

Yarn No.	Q												
	18	19	20	21	22	23	24	25	26	27	28	29	30
6	267	306	343	376	410	442	474	502	530	558	584	609	634
7	225	258	290	319	349	376	402	428	452	476	497	519	540
8	192	221	249	276	302	326	350	372	393	414	433	452	471
9	167	193	218	243	265	288	308	328	347	366	383	400	417
10	147	171	194	216	236	257	275	294	311	328	344	359	374
11	131	153	173	194	213	231	249	265	282	296	311	325	339
12	117	136	156	176	193	210	226	242	256	270	284	297	309
13	106	124	143	160	177	192	207	222	235	248	260	272	284
14	96	112	130	147	162	177	191	204	217	229	241	252	263
15	87	104	120	136	150	164	177	189	201	213	223	234	244
16	80	95	111	126	139	152	164	176	188	198	209	218	228
17	73	88	103	117	130	142	154	165	175	186	196	205	214
18	67	81	95	109	121	133	144	155	165	174	184	192	201
19	62	75	89	102	114	125	135	146	155	164	173	181	190
20	57	70	83	95	106	117	127	137	146	155	164	172	179
21	53	65	77	89	100	111	120	130	138	147	155	163	170
22	49	61	73	84	95	105	114	123	131	140	147	154	162
23	46	57	68	79	90	99	108	117	125	133	140	147	154
24	42	54	65	75	85	94	103	111	119	126	134	141	147
25	39	50	61	71	81	89	98	106	113	120	128	134	141
26	37	47	57	68	77	85	93	101	108	115	122	128	134
27	34	44	54	64	73	81	89	96	103	110	117	123	129
28	32	41	51	61	69	78	85	92	99	106	112	118	124
29	29	39	49	58	66	74	82	89	95	101	108	114	119
30	27	37	46	55	63	71	78	85	92	98	103	109	115

4.5 TM Skein break (lbs.)

Yarn No.	Q												
	18	19	20	21	22	23	24	25	26	27	28	29	30
6	301	332	362	390	417	444	468	493	517	540	563	586	608
7	253	280	306	331	354	377	400	420	441	461	480	500	519
8	218	242	265	286	307	327	347	365	384	401	418	436	452
9	190	212	232	252	270	289	306	323	339	355	370	385	400
10	168	188	207	224	241	258	273	289	303	318	332	345	359
11	150	168	186	202	217	232	247	261	274	287	300	313	325
12	135	152	168	183	197	211	225	238	250	262	274	285	297
13	122	138	153	167	180	193	206	218	229	241	251	262	273
14	111	126	140	153	166	178	190	201	212	222	232	242	252
15	102	115	129	142	153	165	176	186	196	206	216	225	232
16	93	107	119	131	143	153	163	174	183	192	201	210	219
17	86	99	111	122	133	143	153	162	171	180	189	197	205
18	79	92	103	114	124	134	143	152	161	169	177	185	193
19	74	85	96	107	116	126	135	143	151	159	167	175	182
20	68	80	90	100	110	118	127	135	143	151	158	165	172
21	64	74	84	94	103	112	120	128	135	142	149	156	163
22	59	70	80	89	97	106	114	121	128	135	142	149	155
23	55	65	75	84	92	100	108	115	122	128	135	142	147
24	52	61	71	80	88	95	103	110	116	123	129	135	141
25	48	58	67	75	83	91	97	104	111	117	123	129	135
26	45	55	63	72	79	86	93	100	106	112	118	124	129
27	42	52	60	68	75	82	89	95	101	107	113	118	124
28	40	48	57	65	72	79	85	91	97	103	108	114	119
29	37	46	54	61	69	75	82	87	93	99	104	109	114
30	35	43	51	59	66	72	78	84	89	95	100	105	110

How To Estimate Cotton-Yarn Strength

Technical Editor:

Are there any methods of estimating the strength of carded and combed yarns of different sizes? (1334)

Tables to estimate the skein break strength of carded yarns have recently been worked out by J. F. Bogdan, Director of Processing Research, School of Textiles, N. C. State College, Raleigh, N. C. A range of carded yarns from 6s to 50s with twist multipliers from 2.5 to 5.5 are given in the tables.

Because combed yarns can be assumed to be 10% stronger than carded yarns, combed-yarn strengths can also be calculated from the tables. These facts are required: (1) yarn number, (2) twist multiplier, and (3) skein break of one yarn spun from that stock.

Here's how the tables are used. If you know that the skein break of a 20s carded cotton yarn with a 4.0 TM is 117 lbs., you can find its Q or quality-reference number by finding the column in which 117 occurs opposite 20s.

The Q value in the 4.0 TM table is 23. The approximate strength of any yarn number or twist multiplier in the range of tables can be predicted. If you want to know the skein break to be expected if you spin this stock into 30s yarn with a 4.5 TM, turn to the 4.5 TM table and find opposite 30s yarn the figure under the Q = 23 line. The skein break is 72 lbs.

COTTON-YARN STRENGTH for yarns with twist multipliers of 4.0 and 4.5 can be estimated with these tables. Other tables have been worked out to cover twist multipliers from 2.5 to 5.5 and yarns from 6s to 50s.

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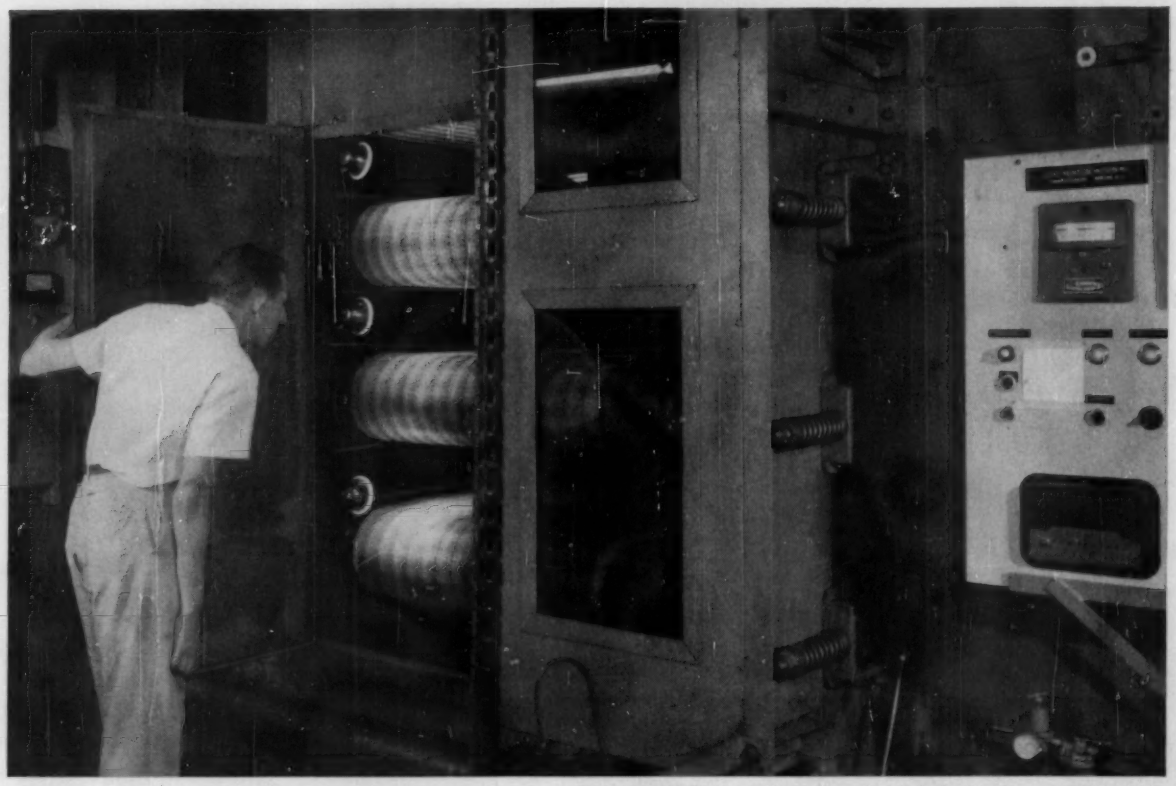

Photograph of multiple-pass drier courtesy of Synthetics Finishing Corporation, Philadelphia.

The resin with many Textile uses

RHOPLEX B-15 is, literally, a most "use-full" resin. We can think of no better way to demonstrate its versatility for binding and finishing textiles than to ask you to *try* it—then you'd quickly learn just how many useful and outstanding properties this recent addition to our resin family actually has.

Rhoplex B-15 is useful as

- a binding agent in the production of non-woven fabrics for industrial and interlining uses. RHOPLEX B-15 may be used alone or with thermosetting resins . . . resists discoloration and stiffening upon exposure to ultraviolet light or heat . . . shows good thermal and mechanical stability and therefore may be used in processes normal to the manufacture of non-woven fabrics.
- an agent in the wet processing of flat and pile upholstery. RHOPLEX B-15 imparts excellent backing properties . . . severe exposure tests show that it does not discolor or stiffen on aging . . . requires no curing and therefore offers greater versatility in processing.
- a means for improving the physical properties of crease-resistant cotton fabrics.
- a hand modifier for cotton and rayon fabrics and the newer synthetics.
- a pigment binder in the preparation of coated fabrics for book cloth, tag finishes, shade cloth, industrial fabrics, etc.
- a non-slip finish and hand builder for nylon taffeta. RHOPLEX B-15 can be readily mixed with dulling agents, and will often provide a finish that eliminates the need for subsequent calendering.

Our representatives welcome the opportunity to discuss this useful textile resin further and to suggest how RHOPLEX B-15—or any other member of the Rohm & Haas family of textile resins—may be the answer to your textile problems.

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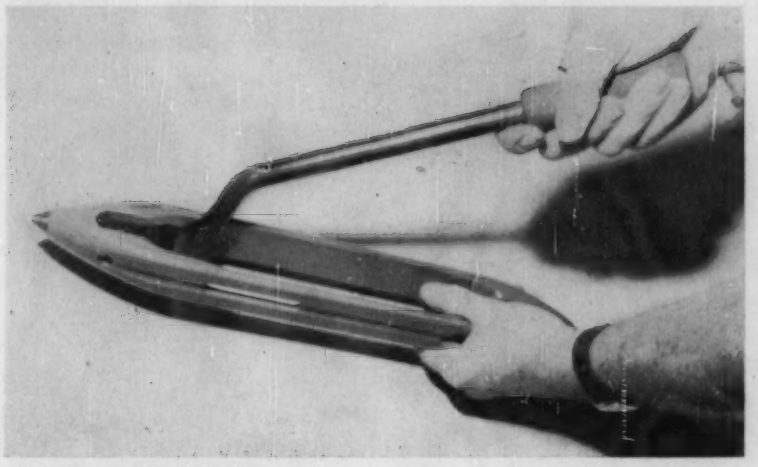


Easily Made Tool Aligns Shuttle Grips

It is impossible to align the shuttle grips of shuttles in bobbin-changing looms with a screwdriver; a screwdriver also splits the shuttle walls.

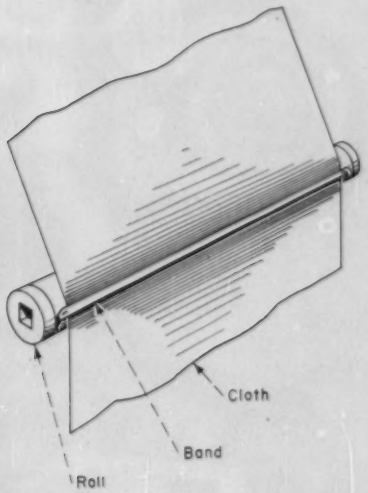
The usual practice in aligning the grips is to remove them from the shuttle by removing two screws. Then the grip and screws may have to be replaced several times before the bobbin is aligned accurately with the shuttle eye.

But the grips can be aligned quickly and accurately while they are still in the shuttle with a special tool we made for the job.

The tool is made from a 16-in. piece of round rod $\frac{3}{8}$ in. in diameter. A slot $\frac{3}{4}$ in. long and $\frac{1}{8}$ in. wide is cut $\frac{1}{2}$ in. from one end of the rod.

Then the slotted end of the rod is bent to about a 30° angle 4 ins. from the end. Two used synthetic-rubber cots are pressed on the other end of the rod for a handle, and the tool is complete.

To align a shuttle grip, the slotted end of the tool is placed over the grip. Then the grip can be bent in any direction quickly. (K-3638) *Thomas P. Pruitt, Jr., Newton, N. C.*



Use Spinning Tape To Fasten Cloth to Roll

The usual method of attaching the cut-off end of cloth to the roll is to use square wooden sticks to hold the cloth in the slots of the roll. These sticks are easily broken or misplaced.

We found that 1-in. spinning tape staple-tacked to the roll is the best method of holding the cut-off end of cloth. When the cloth is doffed and another cloth roll is placed in the loom, the cut-off end of cloth is pulled under the tape. As the roll revolves, it draws the cloth tight and even from edge to edge. (K-3024) *Albert Frantz, Berwick, Pa.*

Telephone Improves Card-Room Efficiency

In our mill, the opening and picking rooms are located some distance apart. The picker-room operator frequently has to get in touch with the opening-room operator, or vice versa.

Since there is only one man in each room, the machines formerly were left unattended in one room or the other while the men conferred. Sometimes chokes or other problems would occur, and shutdowns or waste would result.

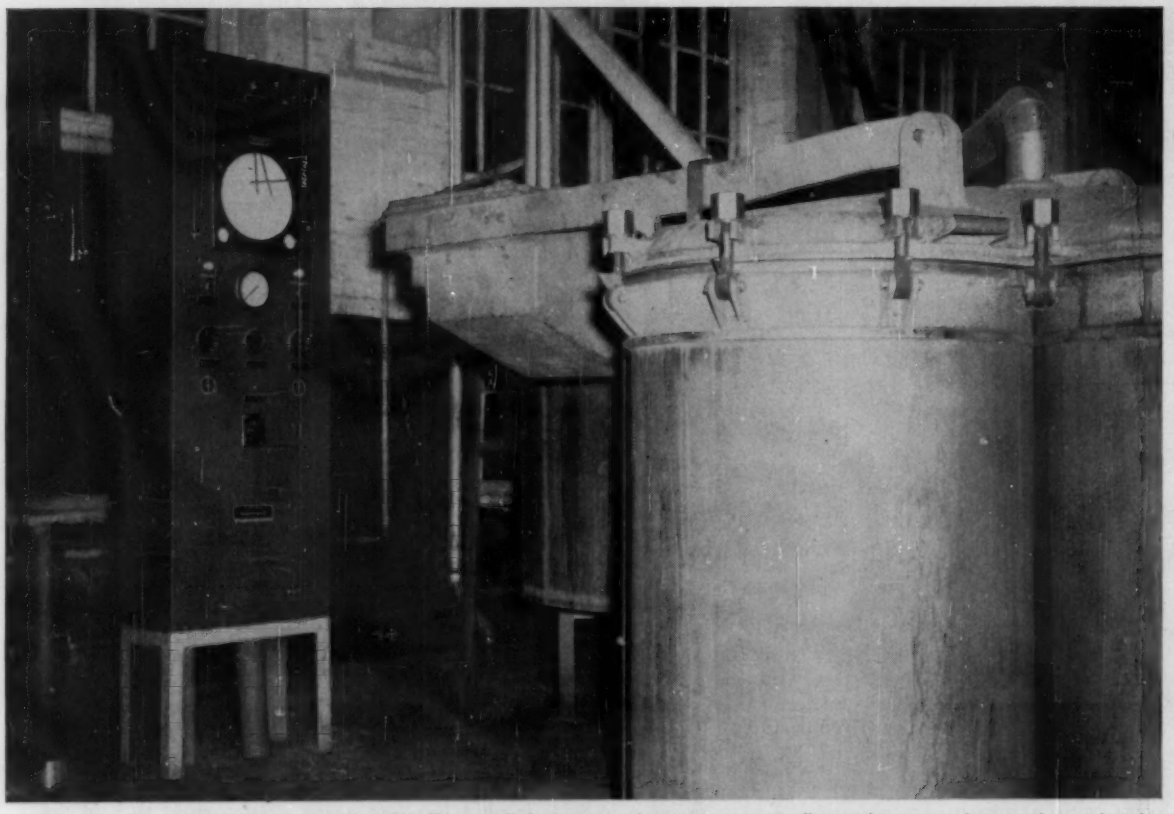
We installed a direct telephone between the two rooms to stop the running back and forth. The system soon paid for itself in time and waste saved. (K-3688) *Carolina Mills, Inc., Newton, N. C.*

Knitting Machine Stops When Gate Is Opened

Our circular knitting machines have a gate around the revolving take-up to protect the workers when the machine is running. To keep from having a nasty accident by running the machine with the gate open, we attached a Micro switch to the machine frame near the gate.

When the gate is closed, it touches the Micro switch connected to the stop-motion circuit. The machine is wired so that it will stop if the Micro switch is disconnected. (K-3100)

Most modern machines now have a similar device incorporated as an integral part of the machine—EDITOR



This Honeywell dyeing control system automatically regulates a package or beam dyer by a simple timing mechanism, and gives a permanent record of dyeing time and temperature.

Get the exact dyeing you want in every batch . . .

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Take the guesswork out of your dyeing operations—and be certain of batch-to-batch uniformity—by controlling your dyers with Honeywell instruments.

These simple, dependable controls automatically regulate dyeing time and temperature . . . put your process on a precise, program basis.

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October Prize-Winning Kink

The best Kink published in the October issue of TEXTILE WORLD, according to our reader-judges, was:

"Extend Life of Shuttle Fur With Felt Backing"

By David L. Garrett, South Boston, Va.

The winner is being sent a check for $25 with the compliments of TEXTILE WORLD.

The prize-winning Kink is reprinted at the right.

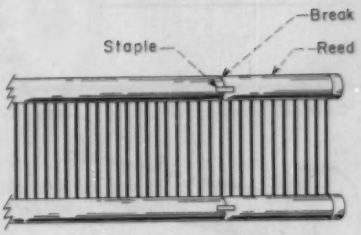
Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 300 mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answers in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.

Extend Life of Shuttle Fur With Felt Backing

When shuttle fur has worn too short to be serviceable, it can be made as good as new with felt backing. Remove the fur, glue strips of felt to the shuttle walls, and then glue the fur on top of the felt.

The fur is thus moved closer to the bobbin, where it gives the same service as new fur. (K-3539) *David L. Garrett, South Boston, Va.*



Splice in Carpet-Loom Reed Makes It as Good as New

We had a lot of downtime caused by broken reeds in our carpet looms. Most of these breaks were made by the shuttle and would be near the end of the reed. When the broken reed was replaced, there would be a lot of downtime because the warp ends all had to be rereeded.

Now we cut off the damaged piece of reed and insert a similar section from an old, undamaged reed. The splice is made secure by the insertion of specially made staples, and then it is covered with tape. It is not necessary to fasten the bottom of the reed because it is held securely in place in the lay.

When a reed is spliced, there are usually only a few ends that need to be drawn and downtime is cut to a minimum. When the warp runs out, the ends can be redrawn in an undamaged reed if desired. (K-3575) *A. M. Dunne, Chicopee, Mass.*

Keys Stenciled for Identity Can Be Found Quickly

Many sections of our plant, such as fire-hydrant stations, are locked. We keep all the keys in the mill machine shop so that employees can reach the individual keys quickly in an emergency.

The shop is always unlocked, and it is centrally located. Consequently, watchmen and other authorized employees can reach the keys when they need them.

Each key is on a regular key ring that is fastened to a piece of flat steel stock $\frac{1}{8}$ in. thick, 1 to 2 ins. wide, and 6 ins. long. The name of the lock position that the key fits is stenciled on the steel stock. Typical examples are: "Fire house No. 5," "Supply Room No. 1," "Creek Pump House," etc. With this marking system, keys are never lost and the marking is permanent. (K-3644)

Washer on Oil-Can Spout Prevents Damage to Machines

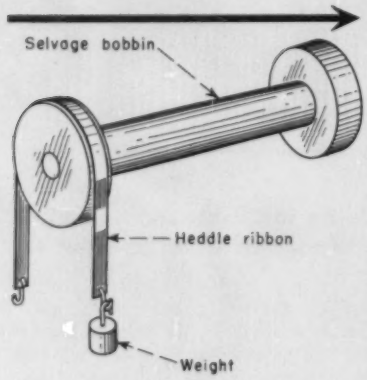
Our oil-can spouts are smaller than the oil holes on our knitting machines. Knitters and fixers formerly jammed the spout too far in the oil hole and damaged the needle and sinker butts.

We now prevent this damage by welding a small washer on the spout of our oil cans about $\frac{1}{4}$ in. from the end. The washer keeps the spout from going deep enough into the hole to cause damage. (K-3387)

Polyester Pile Fabric Makes Improved Filter

Closely woven Dacron pile fabrics make excellent point-of-use filters for dyehouse water lines.

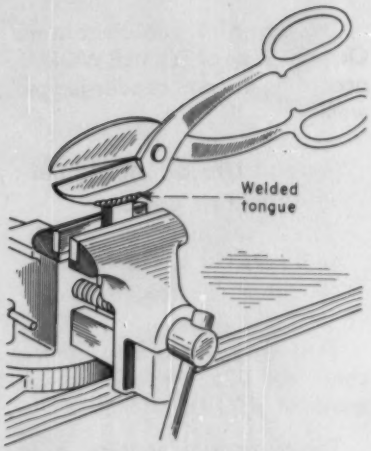
The fabric is made into a bag, pile side in, and tied to the water pipe that serves the dyeing vessel. All suspended matter, such as rust and scale, is stopped by the bag, which has a very long service life and can be cleaned for reuse. (K-3685)



Use a Heddle Ribbon To Brake Selvage Bobbins

When cord is used for drag on heavily tensioned selvage or tape bobbins, it frequently breaks and causes machine shutdowns and bad edges. We use metal ribbons for tension purposes and find that it is superior in every way to cord or fabric bands.

Discarded heddle ribbon is used, with holes punched in the ends for hooks. The ribbon lies flat on the flange of the bobbin and furnishes uniform tension. (K-3028) *Albert Frantz, Berwick, Pa.*



Make a Bench Cutter From Your Tin Snips

Tin snips will do a lot of jobs not ordinarily possible if they are fitted with a short tongue, as shown in the accompanying sketch. The tool can still be stored in a hand tool kit.

The tongue is welded to the snips. Then the tongue is fastened in a vise where it is held securely. With this setup, one man can hold and cut wide pieces of sheet metal and do many other jobs; and the shears can still be used for ordinary cutting. (K-3558)

Warper Creel Is Modified for Small Lots of Yarn

In our fancy-goods mill, we do not have space for two warper creels. This lack of a second creel caused considerable loss of production while the machine was shut down for creeling.

We increased our efficiency greatly by adding another hand wheel and chain that permit each side of the creel to be operated and creeled independently or together. The change was made possible by moving the supports that hold the tensions in place.

The new arrangement is especially advantageous for warping small lots where the numbers vary greatly and tensions have to be altered frequently. We usually run fine numbers on one side and coarse numbers on the other side. Separate lease and warp reeds are used.

For large lots, both sides are used in the normal manner. (K-3599) (K-3599) *Henryk Eiger, Israel-American Co., Tel-Aviv, Israel*

$500 for Best Kink in 1957 - - - $25 for Best Kink Each Month

Plus $5 to $10 for Every Kink Accepted

What Is a Kink?

Any idea that will

- Cut costs
- Improve quality
- Reduce work
- Increase production
- Make work easier

The idea may be one for improving machines, some attachment for a machine, a short-cut way of doing something, a labor-saving device—any idea at all that helps a mill man run his job better or easier.

Send in your Kink now. There is always a contest going on.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1957.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 300 will be asked to select preferred Kinks in each issue. Their votes will select the best Kinks, and their decision will be final. In case of ties, duplicate prizes will be awarded.

Send Kinks to:
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201 E. Coffee St., Greenville, S. C.

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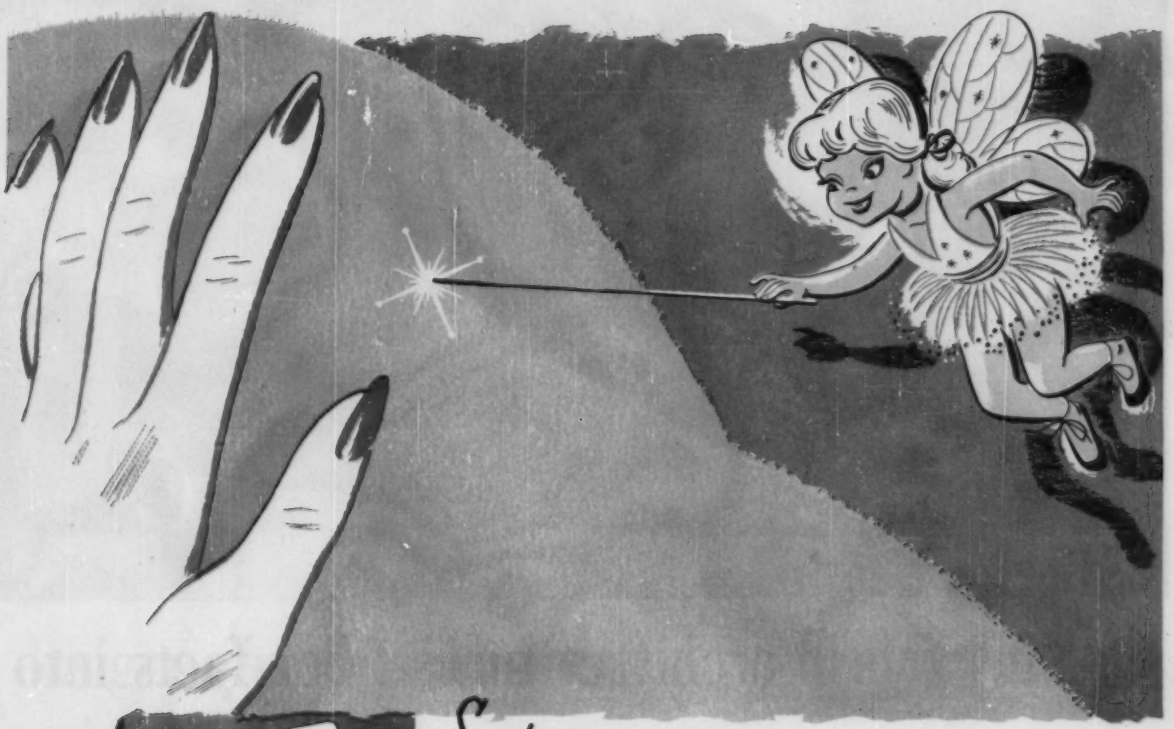

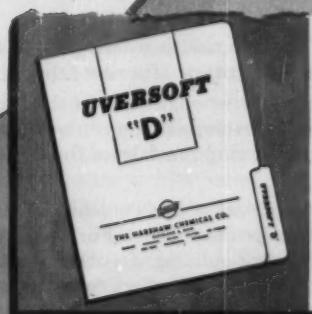

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No. 3 in a series—how your Du Pont salesman is backed by many sales-building activities including Fabric Research, Technical Service, Fabric Development and Merchandising.

This fabric architect turns fiber facts into

Dave Hardin of Du Pont Fabric Development is showing Budd Levinson, President of Fabrex Associates, the prototype of a new fabric idea.

Dave and his associates are skilled artist-engineers. In their hands new blends, constructions and styles are developed to meet today's need for fabrics advanced in styling and engineering . . . fabrics that assure cutter and consumer satisfaction.

Sometimes they translate the properties of Du Pont fibers into a fabric designed to fill the requirements of a specific market. For instance: a hard-wearing, easy-to-care-for, low-cost work shirting. In other cases they experiment with blends and constructions in an effort to engineer entirely new fabrics. Fabrics which respond to the continuing demand for advanced

FROM RAW FIBERS TO RETAIL SALES . . .

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designs for new business

coloration, styling and function. Every fabric design is carefully checked and tested for practical merit at the Chestnut Run Laboratory before it's introduced to the trade.

Du Pont Fabric Development creates these new fabric ideas to expand your business in fabrics containing man-made fibers and to build new and larger markets for the textile industry.

Du Pont believes it can increase the market for its fibers and thus benefit its customers by providing useful assistance to all levels of the textile industry. It's through your Du Pont sales representative that you, as a customer, have access to a range of technical and merchandising information unique in the textile industry.

Product and Process Notes from Du Pont

Slashed Loom Beams—zero-twist acetate warp yarns on loom beams are now available slashed and ready for weaving. Called Type 15, these beams require less processing in the mill and make possible better-quality yarns and fabrics. They are priced the same as unslashed, low-twist section beams.

Cross-Dyed Decorative Yarns—the use of cross-dyed nylon decorative yarns or trim permits more attractive styling of sweaters of "ORLON"* acrylic fiber. The sweater body can be dyed or left white while the decorative yarns are dyed to any shade. This new cross-dyeing method permits greater flexibility in choice of shades and helps avoid accumulation of dyed-yarn inventories. Either spun or filament nylon can be used.

No. 60 Thick and Thin Rayon—a new development containing short, uniformly repeated tapered flakes is now available in 450, 1,100 and 2,200 deniers. Du Pont No. 60 lends novel effects to flat and pile upholstery fabrics, to draperies, and is an excellent decorative yarn for circular knitwear. It is also well suited for hand-knitting yarns, shoe and millinery fabrics.

New Nylon Carpet Staple—Type 600, a new dull nylon staple for carpets, is now commercially available. When combined in varying percentages with Type 100 bright staple, Type 600 eliminates "shading," and retards apparent soiling with no sacrifice of color durability.

Technical Information Bulletins—contain detailed, practical information on Du Pont product and process developments. They cover fiber properties, mill processing, dyeing and finishing. Refer to your copies frequently; they can save you time and money. To be sure you have all the bulletins you need—check with your DuPont salesman or Technical Service representative.

*Du Pont's registered trademark for its acrylic fiber.

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. . . THROUGH CHEMISTRY

DU PONT BUILDS PROFITS FOR YOU

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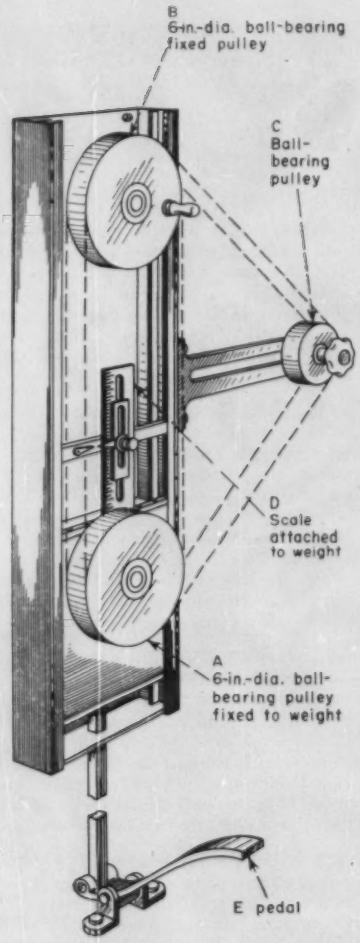


Machine To Match V-Belts Makes Old Belts Last Longer

A homemade machine to match V-belts lets us use miscellaneous old A, B, and C V-belts with as good results as we receive from new ones. The machine shows any variation in length and stretch, and consequently matched sets of belts make each belt carry its part of the load.

The machine is made from a 3-ft. length of 6-in. channel iron and is bolted to a wall or post in the mill.

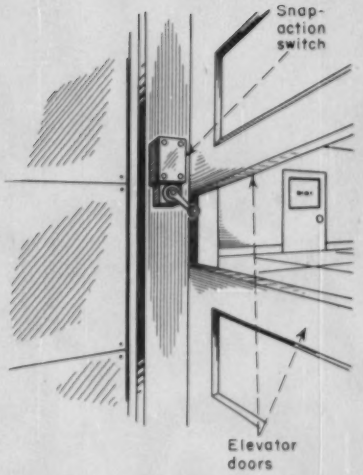
The accompanying sketch shows the machine with its working parts. To test a belt, the foot pedal *E* is mashed and the first belt is put on the pulleys *A* and *B*. For long belts, pulley *C* is used also and it is adjusted to pull the belt taut.

The positions of long and short belts are indicated by the dotted lines in the sketch. Pulley *A* is attached to the machine by guides. It has a 20-lb. weight at its back side. When the foot pedal is raised or lowered, the pulley moves up and down in the guides.

This pulley and weight apply pressure to a belt being tested and indicate the over-all length and stretch of the belt at the scale-and-pointer device *D*.

All other belts to be used in the same set are matched so that the pointer indicates the same position.

The machine is very accurate and never needs maintenance attention. (K-3635) *A. J. Redmond, Gastonia, N. C.*

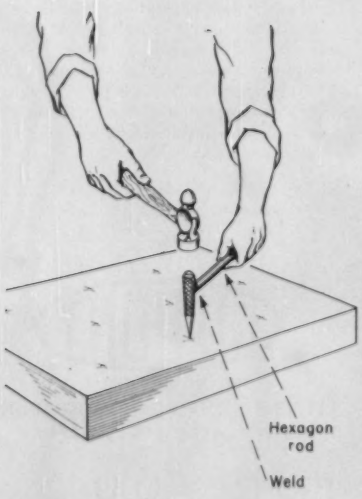


Switch on Elevator Doors Stops Open-Door Operation

To prevent operation of a freight elevator until all floors are closed, we installed a snap-action switch on each floor of our building.

The switches are wired in series with the elevator motor and are actuated by the doors. If an object protrudes through a door opening, the circuit to the elevator motor remains open and the elevator cannot move.

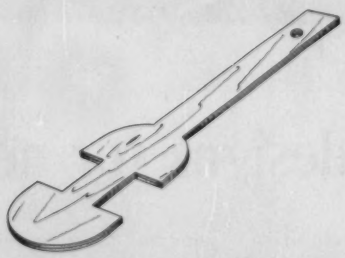
This arrangement prevents injury to employees and damage to the elevator. (K-3646) *William Veil in Micro Tips, Micro Switch Div., Minneapolis-Honeywell Regulator Co.*



Handle on Centering Punch Makes Layouts Accurately

Layout work for drilling frames or plates can be done much faster and more accurately with a centering punch altered as shown in the accompanying sketch.

Just weld a short piece of hexagon steel rod to the punch for a handle. To use the punch, strike a square blow on the punch head. Marks can be seen accurately, and a long line of marks can be center-punched in a short time. (K-3557) *Charles H. Willey, Penacook, N. H.*



Here's a Lug Holder Made From a Picker Stick

We formerly used leather power straps or lug holders on our looms, but they lasted only a few weeks and then had to be replaced. We remedied the situation by making lug holders out of discarded plywood picker sticks.

These holders, being made of very tough plywood, are better than those made of ordinary wood and are much superior to leather. (K-3459)

Warmest Wishes for a Merry Christmas

EASTERN GAS AND FUEL ASSOCIATES

BEACON COAL

EASTERN GAS AND FUEL ASSOCIATES

PITTSBURGH BOSTON CLEVELAND DETROIT NEW YORK NORFOLK PHILADELPHIA SYRACUSE

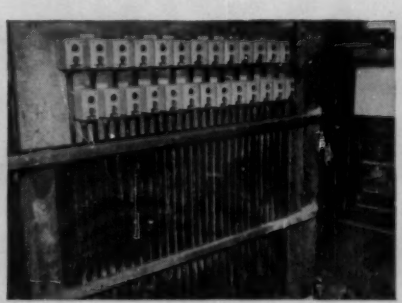
For New England, New England Coal & Coke Co. For Export, Castner, Curran & Bullitt, Inc.

Stainless Steel assures

IF YOU ARE FACED WITH THE COSTLY PROBLEM of corrosion and metallic contamination eating into profits. If it is resulting in premature decomposition of solutions and chemical loss. If it is producing stained and unevenly bleached textile products. If it is causing interrupted production and unnecessary cleaning and maintenance, shortening of equipment life, then . . .

THE ECONOMICAL SOLUTION to your problem is the installation of bleaching equipment fabricated from Republic ENDURO® Stainless Steel. The reason? ENDURO stubbornly resists rust and corrosion. It is non-contaminating. It is inert to the chemical concentrations used in the continuous bleaching process. ENDURO assures batch after batch of pure, matching whites.

ASSURED PURITY of chemicals transported from storage tank to textile equipment is provided by Republic ELECTRUNITE® Stainless Steel Pipe. It stubbornly resists rust and corrosion. It resists the corrosive action of most acids and alkalies. ELECTRUNITE Stainless Steel Pipe's great strength, resistance to high pressure, temperature, and physical damage make it ideal for fluid materials handling. Mail coupon for facts.



ASSURED PROTECTION against production shutdowns is the result of installing "Dekoron®-Coated" ELECTRUNITE E.M.T. or rigid steel conduit. This raceway shrugs off corrosion, reduces replacement costs. A tough coating of polyethylene over a galvanized finish provides an end-to-end armor that is impervious to corrosive fumes and moisture. Joints are protected by polyethylene or vinyl-backed tape. Send for details.

ASSURED LONG LIFE is a built-in feature of textile equipment fabricated from Republic ENDURO Stainless Steel. Photo above shows a saturator used for open-width goods in a continuous steam bleaching process. In use for years, there has been no deterioration, minimum maintenance.

REPUBLIC

REPUBLIC STEEL®

World's Widest Range of Standard Steels

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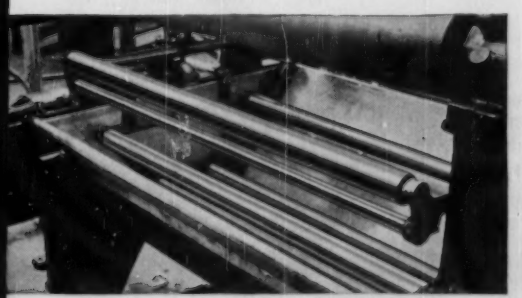
pure bleached whites

THE PAY-OFF to all segments of the textile industry using equipment made from ENDURO Stainless Steel has been *faster production, lowered costs* and a *higher-quality product.* Shouldn't you be enjoying these same advantages? Your equipment supplier has all the facts on the metal that cuts costs, protects, lasts, and lasts. Or, if you require the services of a metallurgist, mail us the coupon.

THE ADDITIONAL BENEFITS of heat-resistance, high strength, sanitary surfaces, easy cleanability, eye appeal, long life, and low end-cost are automatically yours when you buy ENDURO-made textile equipment. Its easy-clean quality has been a boon to dye houses, making possible quick color changes so that now small runs can be processed economically with no danger of off color caused by dye carry-over.



ASSURED MACHINABILITY at reasonable cost is one reason free-machining ENDURO Stainless Steel Bars are used for textile machine parts, such as the rolls shown above. ENDURO bars also provide resistance to wear and abrasion, strength, toughness, and corrosion-resistance. Republic supplies a complete range of analyses in hot rolled and cold finished form.

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Send more information on:
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City _____ Zone ____ State _____

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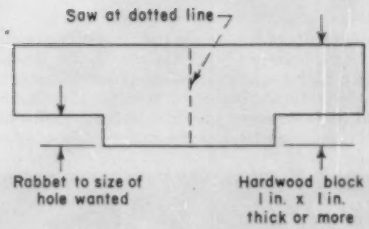


Fig. 1

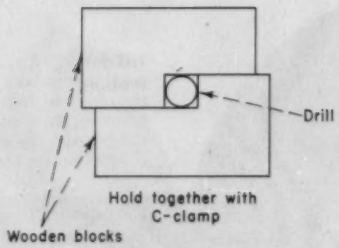


Fig. 2

Small Hardwood Jigs Drill Perpendicular Holes

When a portable drill is used to bore a hole in metal or a bit brace is used on wood, the tools cannot be held perpendicular to the surface being bored.

The small hardwood jig shown in Fig. 1 will hold the tools perpendicular to the work and can be made quickly with a bench saw. Make several blocks for standard drill sizes.

Both ends of a piece of hardwood are rabbeted to the diameter size of the hole wanted. Then the block is sawed at the dotted line to make two halves of the holding device.

The two halves are pressed against the boring tool and held with a C-clamp in the position shown in Fig. 2.

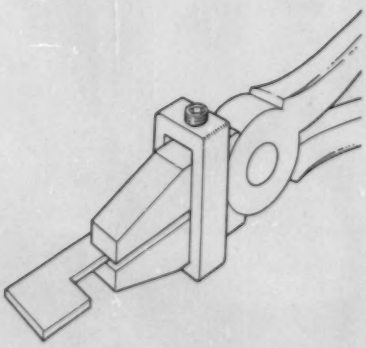
To use, place the point of the drill in the center mark for the hole wanted and clamp the drill guide to the work for drilling. (K-3574) *Walter A. Simond, Washington, D. C.*

Plastic Cover Protects Box-Change Mechanism

The majority of Crompton & Knowles M-P looms have the box-change mechanism on the left side. Bits of leather fall from the picker-rod spindle into the gear box. Heavy fly and lint also fall into the gears and damage them. A shuttle jam, smash, or damaged goods are often caused by foreign matter between the meshing pinion and the intermittent drive gear.

A guard made of sheet plastic will protect the box-change mechanism. The box gears and sliding tooth can be seen through the transparent plastic while the loom is running. Metal screen can also be used as a guard, but it is not as satisfactory as the plastic.

Attach the cover to the upper bolt that holds the dobby support stand on the end near the dobby drive crank. Have an open-end slot in the cover so that it can be removed easily when repairs to the box mechanism are necessary. (K-3525) *H.E.W., Berwick, Pa.*



Convert Pliers Into a Vise With This Attachment

A vise for holding small objects can be improvised from pliers by the use of a yoke that fits over the jaws of the pliers as shown.

After an object is placed in the plier jaws, pressure is exerted by means of an Allen setscrew in the yoke. To prevent the attachment from slipping, drill a hole part way into the jaw to serve as a base for the setscrew. (K-3251) *C. H. Willey, Penacook, N. H.*

Homemade Indicator Checks Humidity

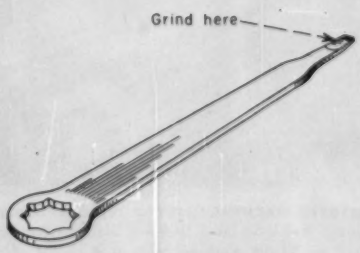
Plants that do not have automatic humidity control can at least get a good idea of the percent of relative humidity in the operating areas if they will prepare some rayon skeins as follows:

Soak the skeins in a saturated solution of cobaltous chloride, squeeze out excess moisture, and let the skeins dry.

Each skein can be cut into two or more sections and hung in the working areas at convenient spots. When the relative humidity is 65% or more, the treated rayon will be pink in color. If the humidity drops below 60%, the rayon will turn blue. (K-3668) *Hokao, Fukaya, Katsuyama-shi, Fukuiken, Japan.*

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prize-winner contest.

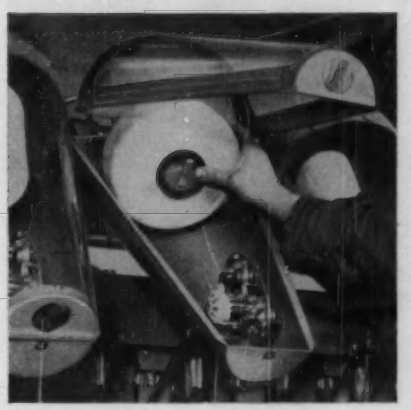
Send in your Kink now.



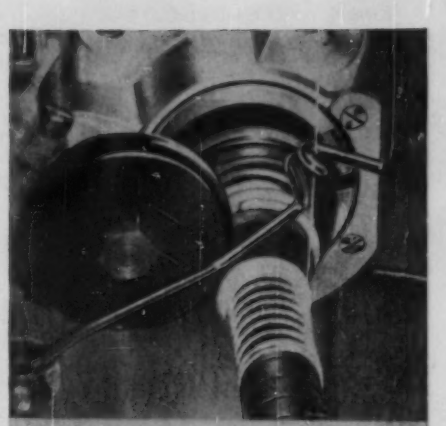
Modify a Box Wrench For Work on M-P Looms

The nylon picker-rod-stand bushings used on M-P looms are hard to turn with an open-end wrench; a box wrench is better.

To make the box wrench more useful, cut off one end and grind it down to screwdriver shape. This sharpened end of the wrench can be used for prying the damaged box-side picker out of the runway when it is stuck; for scraping off accumulations of grease, waste and residue; and for other purposes about the loom. (K-3230)



Suction hood takes all normal cross wound bobbins, also cheeses.



ROTOR device for tailless pirns reduces labour when filling loom batteries.

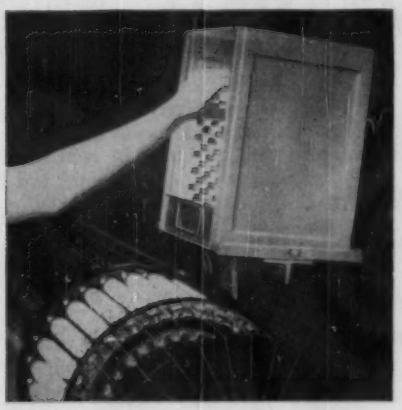
SCHWEITER SUPER-AUTOMATIC PIRN WINDER type MSL

- **Automatic feeding device for empty pirns**
- **Individual apparatuses**
- **Automatic suction dust remover**
- **ROTOR device for tailless pirns**
- **Pirn packing device PACKER, for transporting the pirns directly to the loom**

This is one of the most efficient and versatile constructions in the field of automatic pirn winders.

SCHWEITER LTD.
HORGEN (Zürich) Switzerland

Manufactured by **WHITIN MACHINE WORKS, Whitinsville, Mass. (U. S. A.)** *for sale in U. S. A. and Canada.*
Manufactured by **SCHWEITER** *for sale in other countries.*



Fully wound bobbins are easy to fill in the loom battery. Exchanging of empty boxes for full ones is very simple.

Packer boxes are to be stacked very easily. 70 boxes totalling up to 7000 pirns moved at one time.

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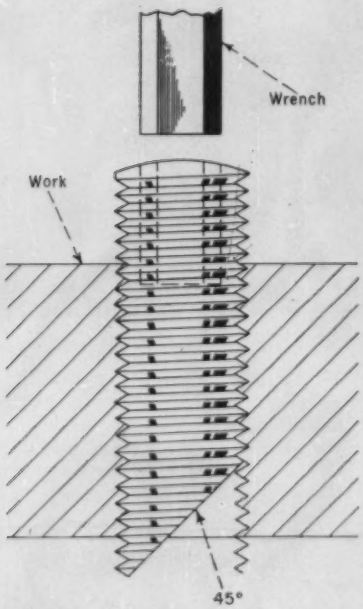


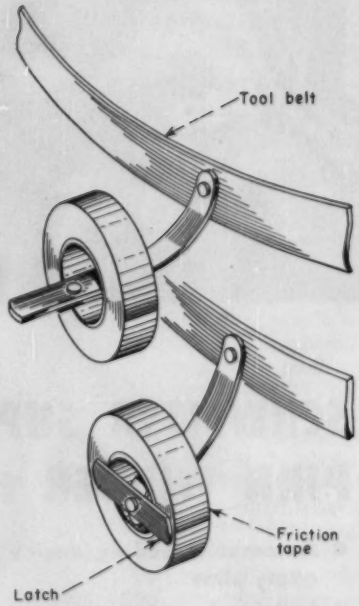
Socket-Head Setscrew Cleans Threaded Holes

A standard socket-head setscrew makes an efficient thread cleaner for holes tapped all the way through metal. File or grind a flat surface on the lower end of the setscrew to an angle of 45° to the axis, and the tool is complete.

To use the cleaner, first soften the dirt in the hole with oil or a grease solvent. Then turn the setscrew all the way through the hole so that it drops out the bottom. Dirt particles will be collected and carried through with the setscrew.

Always wash the setscrew in kerosene or a similar solvent to clean it off before it is run through a threaded hole.

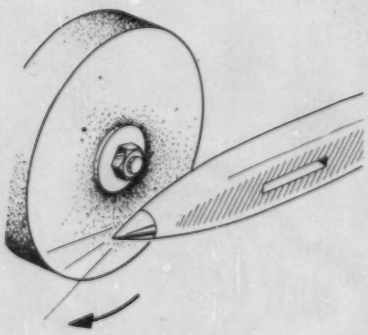
A socket-head setscrew is used because it can be comparatively short and yet be suitable for holes of any depth. And since socket setscrews are hardened, they do not wear rapidly. (K-3556) *Clifford T. Bower, London, England*



Make This Belt Holder For Electrician's Tape

When it is necessary to carry friction tape on the job, use a handy holder attached to your tool belt.

A piece of leather about 6 ins. long is riveted to the belt, as shown; and a 2-in. latch of stiff leather or plastic is fastened with a brad to the other end of the strap. When the latch is turned parallel to the strap, it can be inserted in the hole in the roll of tape. Turning the latch at right angles to the strap will hold the tape securely. (K-3469)



How To Grind Shuttle Spurs To Prevent Chafed Yarn

When you are running rayon warps, the slightest scratch or rough place on the shuttle spur will ruin the fibers of the warp yarn or break the yarn. If the spur becomes dull or has scratches on it, a grinding wheel can be used to dress it.

But always grind or polish toward the point of the spur, not at right angles. Tiny scratches across the spur will chafe the yarn, while those running lengthwise will not harm it. Even when you use emery cloth or sandpaper on the shuttle spur, always rub toward the point and not crosswise. (K-3409) *Chas. S. Bicksler, Lancaster, Pa.*

Table Saves Time For Warper Creelers

We used to spend a lot of time calculating the number of rows of cheeses on the creel necessary to produce a given number of ends on the warper beam. To save time, our standards department worked out a table that shows the number of rows of cheeses required for 300 to 450 ends on the warper beam.

Here is a portion of the table we use:

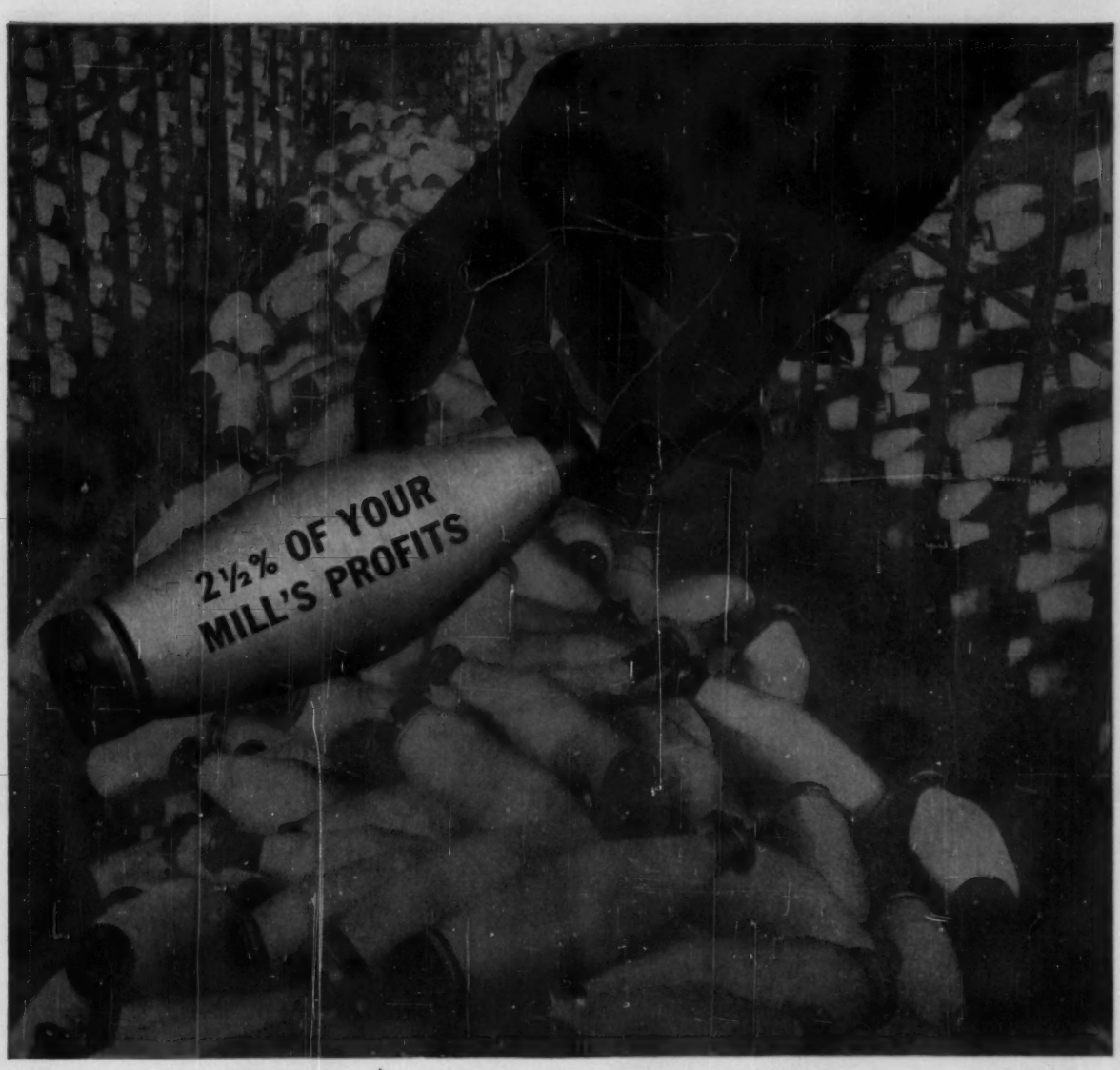
Ends	Rows	Right side	Left side
388	21	5	5
389	21	5	6
390	21	6	6
391	21	6	7
392	21	7	7
393	21	7	8
394	21	8	8

To use the table, the operator reads across from the number of ends to the number of rows and extra cheeses needed. For example, a 390-end beam requires 21 rows of cheeses on each side of the creel plus six cheeses on the twenty-second row of both sides. (K-3085)

Plastic-Bottle Oiler Is More Accurate

We've found the new polyethylene catsup bottles to be very handy for oiling our knitting and sewing machines. These bottles cost only 15¢ each and can be obtained in grocery or 10¢ stores.

Here are the advantages we've found: (1) you can easily tell when the bottles are empty; (2) they can be used with greater accuracy on small parts that need little oil; and (3) they are cheaper than regular oil cans. Bottles painted with a red band hold needle oil. (K-3393)



STOP THIEF!

Friction is a silent thief. You can't see it or hear it.

Unless your machinery breaks down, you may never even realize that excessive friction exists.

But you may be puzzled over mounting power costs. For this is one of the tolls that friction takes . . . a toll no one can afford with today's narrow profit margins.

The simple answer to friction—as well as to staining, oxidation, and other problems—is one of the 17 specially made Cities Service Textile Oils.

By minimizing friction and reducing power loads, these remarkable oils can actually add as much as 2½% to your mill's profits!

Why not take advantage of these benefits? Talk with a Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

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QUALITY PETROLEUM PRODUCTS

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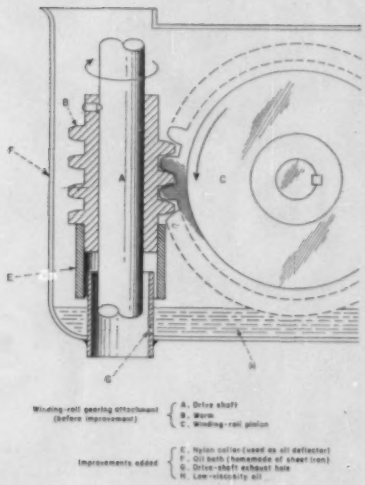

Winding-roll gearing attachment (before improvement)
A. Drive shaft
B. Worm
C. Winding-roll pinion
Improvements added
E. Nylon collar (used as oil deflector)
F. Oil bath (homemade of sheet iron)
G. Drive-shaft exhaust hole
H. Low-viscosity oil

Oil Bath Changes Uptwister To Low-Twist Uptwister

We needed to use our uptwister for low-twist uptwisting of crepe yarn. The winding roll and traverse cam were strong enough to permit high roll speed, but there was no lubrication system on the uptwister.

At low speed, a periodic application of grease on the pinion teeth gave enough lubrication. But after a few hours of running at high speed, the worm and pinion were worn excessively and had to be replaced.

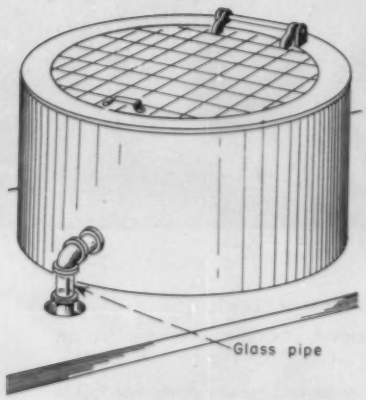
We added an oil bath. But because of the vertical position of the shaft and the high vibration of the shaft and pinion, joints of the oil bath leaked oil.

To stop the leakage, we added:

1. A force-fitted nylon collar to the worm and pinion, as shown at *E* in the accompanying sketch. In addition to preventing leakage, the collar acts as an oil deflector for oil drops that fall from the worm and pinion.

2. An exhaust hole G, which is a piece of brass pipe soldered through the base of the oil bath.

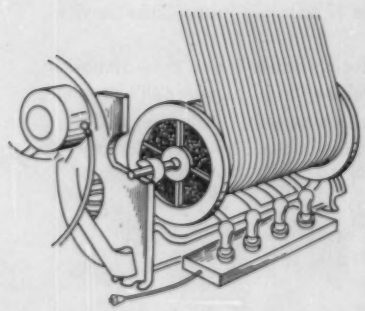
Now we run the low-twist crepe yarn on the machine with no unusual trouble. (K-3572) *Albert Defraeye, Mulhouse, Haut-Rhin, France.*



Glass Drain Shows Degree of Extraction

When centrifugal extractors are mounted so that it is practical, replacement of a section of the usual metal drain pipe with glass pipe helps indicate when efficient extraction has been completed.

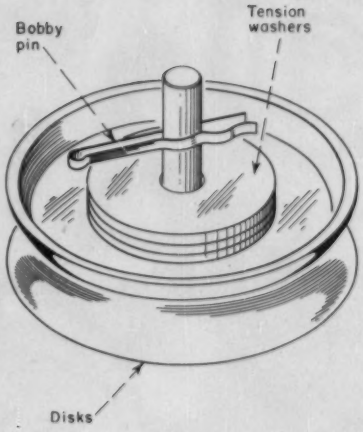
Experience shows that cotton goods retain about 25% water when they are extracted to the point where no water can be seen dripping from the drain. (K-3663)



Lamps Help Straighten Damp, Tangled Warps

When warps are stored in places where they absorb too much moisture, the ends often buckle and become tangled as they run off the beam on the loom.

A number of 100-w. lamps mounted on a board and set beneath the beam will radiate enough heat to dry the yarn as it comes off the beam. (K-3532)



Use Bobby Pins To Keep Washers on Tensions

The tension disks on our knitting machines are controlled by small washers. When more tension on the yarn is needed, more washers are put on the disk.

We use compressed air to clean our machines, and the small washers are frequently blown off their posts. Sometimes we failed to notice that these washers had gone, and we had trouble with tension.

To eliminate this trouble, we now keep the washers on the post with bobby pins. We cut the bobby pins in half and slip the spring end over the post. One of the notches in the bobby pin grips the post and keeps the washers from blowing off. (K-3506)

Clean Knitting Rooms With Long Air Nozzle

Lint rapidly collects on rafters, beams, stop motions, and other high objects in knitting rooms. This lint can be removed rapidly with a compressed air gun fitted with a long nozzle.

Use ¼-in. tubing long enough to reach the highest objects. Thread the end of the tubing. Screw off the end of the air-hose nozzle, and screw the tubing in the nozzle.

You can now clean the overhead parts from the floor without the help of a ladder. (K-3422)

A complete

TUFTING YARN SYSTEM

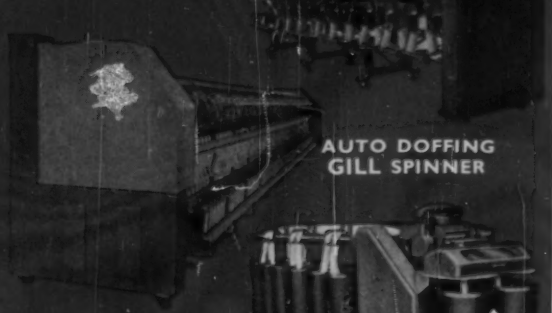
for

VISCOSE, ACETATE, HIGH CRIMPED NYLON, etc., 4-50 Deniers & 4"-8" Staple

AUTO DOFFING TAG END TWISTER

MACKROLL WINDER

- This Tufting Yarn System has been developed in response to the increasing demand for a non felting long-wearing carpet.
- The Gill Spinning Unit with its Pin Control and Automatic Doffing is the most versatile unit of its type on the market to-day.
- Gill spun yarns have been proven to give high tufting machine efficiencies.
- Complete Units sold to the United States of America, Europe, Africa and Australia.



AUTO DOFFING GILL SPINNER

INTERSECTING DRAWINGS

CARD WITH HOPPER FEED

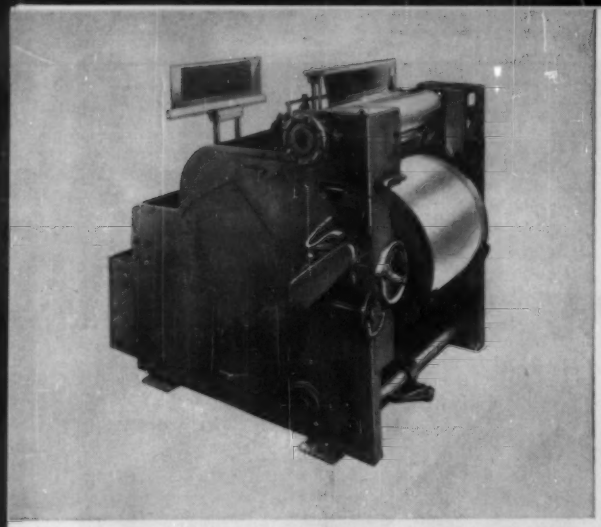
ENQUIRIES INVITED SAMPLES SPUN ON REQUEST

TEXTILE MACHINISTS SINCE 1846

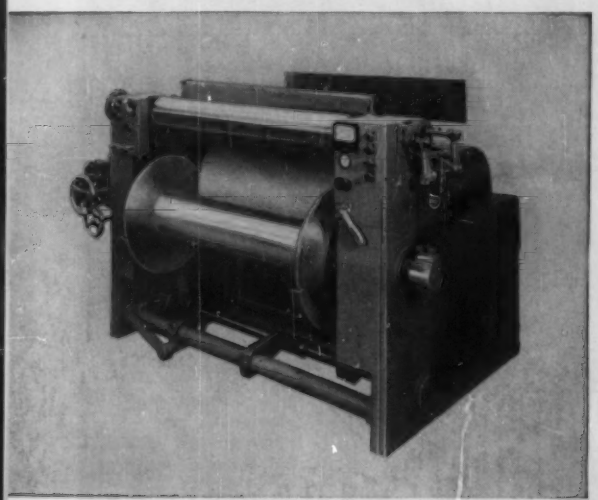
James Mackie & Sons Ltd

BELFAST, NORTHERN IRELAND

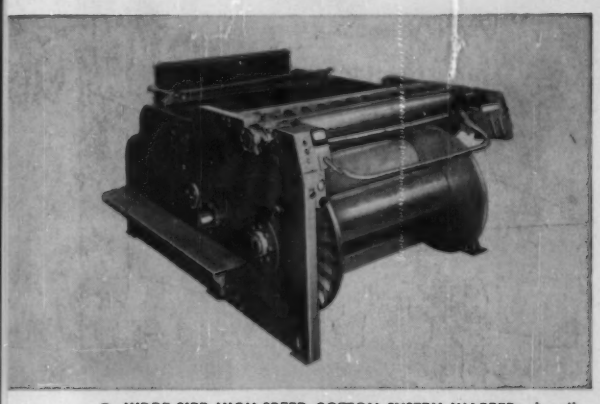
S2.



1 KIDDE-SIPP 21" TRICOT WARPER—handles beams with 14" or 21" diameter flanges and with lengths up to 21". Minimum yarn speed is 75 YPM; maximum is 600 YPM.



2 KIDDE-SIPP 42" TRICOT WARPER is the same as the 21" Warper except that it will handle beams up to 42".



3 KIDDE-SIPP HIGH-SPEED COTTON SYSTEM WARPER—handles 54¼" or wider beams with flanges up to 36". Pushbutton controls. Constant yarn speeds to 900 YPM.

3 NEW WAYS ...to make better beams

ALL THREE of these new Kidde-Sipp warpers make better beams because all three have these Kidde-Sipp features:

Beam doffs automatically—even a girl can doff a 2000 pound beam easily, in a hurry, and single-handed. She just pushes a lever and a hydraulic system does the work . . . swings the beam down and out of the warper.

Yarn is never scuffed—because brakes on the measuring roll, compression roll, and beam are all synchronized electrically. When one stops, they all stop simultaneously. There's no strain to scuff the yarn.

Yarn builds up evenly—because the compression roller has 2 hydraulic cylinders—one at either end (instead of just 1 in the center). This produces even, balanced pressure which assures even build-up of yarn. And hydraulic loading ends all chatter and bounce.

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TEXTILE WORLD, A McGraw-Hill Publication, New York 36, N. Y., December, 1957

Outstanding NEW LITERATURE *Free for the Asking*

NO REPEATS . . . Listed here for December are current bulletins reviewed by the editors of TEXTILE WORLD. To get the ones you need, circle the number on the Reader-Service card, as described on the preceding page.

TEXTILE MACHINERY & AUXILIARY EQUIPMENT

End-break detector—For beaming operations. Unit employs photoelectric-cell scanning system, stops beamer if end breaks. Circular from Lindly & Co. **(F-1)**

Micro projector—Magnifies small parts so they may be checked for uniformity or wear. George Scherr Co., Inc. **(F-2)**

Printer's accessories—Screen-printing rollers, color-straining equipment, other items described in folder from Friedrich Grohmann. **(F-3)**

Bleaching range—Open-width type for most fibers. Produces up to 33,000 yds. in 8 hrs. in range about 20 ft. long. Elmo International. **(F-4)**

Lestershire bobbins—Various sizes and shapes for many winding purposes, made from wood, fibre, or metals. Lestershire Spool Div. **(F-5)**

SUPPLIES & CHEMICALS

Plasticizer—For vinyl formulations, NP-10 is useful in coating or molding operations. Folder TDR L-101. Eastman Chemical Products, Inc. **(F-6)**

Paint specifications — For textile plants. Proper types, colors listed in folder MC56-P7 from Sherwin-Williams Co. **(F-7)**

Cleaning solvent—Chlorothane for cold-cleaning machinery by dip, brush, or spray methods. Nontoxic, nonflammable. Dow Chemical Co. **(F-8)**

Rust remover—Inhibited dry material for removing rust and scale from various metals. Formulations, uses listed in bulletin from Oakite Products, Inc. **(F-9)**

Rust prevention—Priming and finishing procedures and materials for protecting metals outlined in brochure from L. Sonneborn Sons, Inc., Building Products Div., Dept. EE. **(F-10)**

Antifoam—Properties and application of antifoam material for coatings and adhesives set forth in information sheet from Hodag Chemical Corp. **(F-11)**

Guar gum—For flocculation, dispersing, suspending materials in various mixtures. Booklets from General Mills. **(F-12)**

Dye identification — Comprehensive tests to identify most dyes described in four-color Bulletin 846 from American Cyanamid Co. **(F-13)**

Heavy chemicals—How they are made, principal uses described in booklet from Diamond Alkali Co. **(F-14)**

Lubrication—How to lubricate portable air tools shown in Vol. 43, No. 9, of Lubrication, from The Texas Co. **(F-15)**

Polyvinyl alcohols—A series of these

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materials for adhesives, sizes, coating compounds, other uses described in Bulletin M13-T from Borden Co., Chemical Div. (F-16)

Grease remover—Concentrated cleaning material prepares dirty surfaces for painting. Water-miscible, nontoxic. Wilbur & Williams Co. (F-17)

Acrolein—Various derivatives, properties, reactions listed in booklet from Union Carbide Chemicals Co., Div. of Union Carbide Corp. (F-18)

Textile resins—For finishing. Polyvinyl acetate emulsions with various physical characteristics listed in Bulletin GT101-57 from Shawinigan Resins Corp. (F-19)

Paint sanitizer—Added to paint, provides durable bacteriastatic effects for many classes of fungi, bacteria. Heyden Newport Chemical Co. (F-20)

MAINTENANCE & ENGINEERING

Switches—For control of many machine functions. Applications of various types shown in folder 84-272W-7-7 from Micro Switch Div., Minneapolis-Honeywell Regulator Co. (F-21)

Glass pipe—For drain lines, other uses where corrosion resistance is important. Bulletin PE-30. Corning Glass Works. (F-22)

Industrial burners—For oil or gas or combinations of fuel. Packaged units complete with controls in 4,000- to 66,000-lbs.-per-hr. steam-production capacity. Coen Co. (F-23)

Axial-flow fans—For all industrial air-moving operations, 24- to 48-in. dia. Bulletin 775. Aerovent Fan Co., Inc. (F-24)

Centrifugally cast steels—For manufacturing hollow cylindrical objects. Various alloys, sizes described in folder from Electric Steel Foundry Co. (F-25)

Steel-specification chart—Lists AISI grades of cold-finished steel bars; 241 grades described in 11x17-in. wall chart from La Salle Steel Co. (F-26)

Control valves—For liquids or gases, ½- to 6-in. sizes, various types and capacities. Schade Valve Mfg. Co. (F-27)

Hubs and bushings—Split-taper bushings, steel hubs listed in 10 stock sizes and three special sizes in Cat. HB-101-A from Browning Mfg. Co. (F-28)

Electric brakes—For fail-safe applications to many machines described

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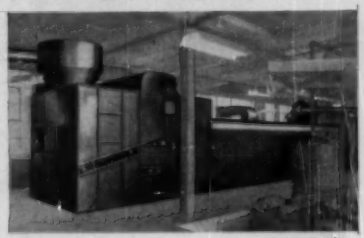

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with auxiliary equipment in Report WEB6293 from Warner Electric Brake & Clutch Co. **(F-29)**

Graphite products—For corrosion-resistant heat exchangers, pumps, other uses. Cat. Section S-5008. National Carbon Co., Div. of Union Carbide Corp. **(F-30)**

Air handling—Distribution and control of air in factories through automatic controls. Bulletin F8326. Barber-Colman Co. **(F-31)**

Link V-belts—For applications where endless belts are impractical, in sizes from ⅜ to 1¼ ins. Dayton Rubber Co. **(F-32)**

Catalytic exhaust purifiers—For gas- or gasoline-powered trucks operating within doors. Oxy-Catalyst, Inc. **(F-33)**

Circuit breakers—Load-center types for lighting circuits, other uses to 200 amps., also special-purpose types. Bulletin GEA 6661. General Electric Co. **(F-34)**

Safety controls — For low-pressure steam boilers. Guard against low water, actuate feed-water equipment. McDonnell & Miller, Inc. **(F-35)**

GENERAL

Steam-jet cleaner — Produces live steam or steam plus detergent solutions. Electrically heated portable unit requires 15 to 18 kwh. Pantex Mfg. Co. **(F-36)**

Roll-design formulas — How to estimate correct operating speed of rolls used in textile processing. Report No. 13. Rodney Hunt Machine Co. **(F-37)**

Shipping fasteners—Methods of securing shipments in freight cars; five ways described in Folder SPD-171 from Signode Steel Strapping Co. **(F-38)**

Roller conveyors—Designed for solid objects in a wide variety of shapes. Specifications and capacities given in Bulletin RR-57 from Rapids Standard Co., Inc. **(F-39)**

Cost reduction—How to realize cost reduction in manufacturing in areas outside automation. Booklet 256 from Equipto. **(F-40)**

Storage systems — For offices, warehouses. Mobile units in rack, shelf, or drawer form; move on tracks. Dolin Metal Products, Mobile Storage Div. **(F-41)**

Tile-floor maintenance—How to treat, maintain, and restore rubber-tile floors.

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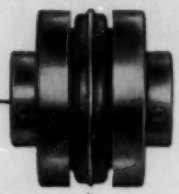

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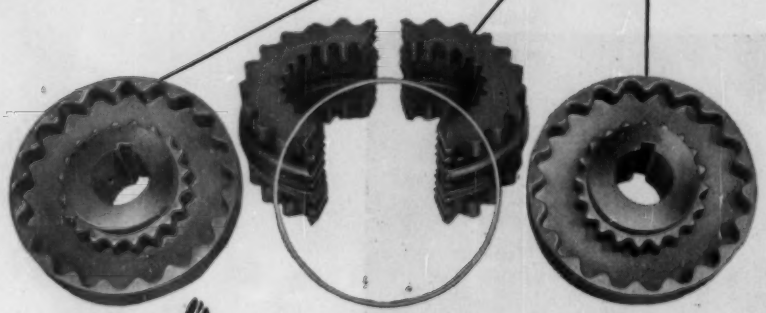

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NEW LITERATURE Continued

Form 1402. Multi-Clean Products, Inc. (F-42)

Storage batteries — Improved nickel-iron types for industrial purposes described in folder from Edison Storage Battery Div., Thomas A. Edison Industries. (F-43)

Low-lift transporter — For pallets. Walkie-type electric trucks lift 4,000 to 6,000 lbs. Handle control, three speeds. Automatic Transportation Co. (F-44)

Engineering services—For research and development of better products and processes. Case histories in booklet from Servo Corp. of America. (F-45)

Trucks and casters—For inplant transportation of materials in process. Many types of trucks, variety of casters listed in Junior Catalog 58G. Nutting Truck & Caster Co. (F-46)

Low-cost accounting — How it is achieved through electronic equipment actuated by punched cards. Booklet U921 describes utilization of Univac 120 computer. Remington Rand Univac. (F-47)

Process control—Through the use of computers, set forth in article available from Beckman Instruments, Inc., Systems Div. (F-48)

Fork trucks—Powered with gasoline or LP gas, in models for 2,000- to 7,000-lb. loads. Engine, transmission, and axle coupled into an integral unit. Models described in Bulletins 1348-A and 1395. Baker-Rauling Co. (F-49)

Door controls—Automatic, semiautomatic types actuated by contact or through electric eyes. Magic Door Div., The Stanley Works. (F-50)

Textile World

BOOK REVIEWS

THE WESTERN EUROPEAN MARKETS, by J. Walter Thompson Co.; McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y.; 300 pages, 20 maps, $18.

For the man who sells, advertises, or plans plant investments abroad, this volume provides essential facts on the

Using Salt Efficiently

by **INTERNATIONAL SALT COMPANY, INC.**—America's largest producer of salt

How Large Plants Reduce Costs of Salt Handling and Brine Making

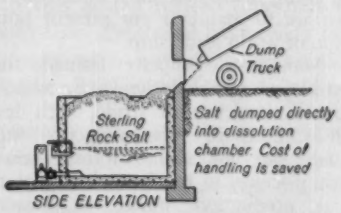
Many of today's large users of brine are saving money on salt deliveries, on handling salt in the plant, and on the production of saturated brine . . . by installing one rugged, permanent piece of equipment, a Storage Lixator. This unit (the exclusive development of International Salt Company) is a large combination salt-storage and salt-dissolving tank.

The Storage Lixator is strong—can easily hold the weight of heavy trucks or railroad cars. It's adaptable—can be located almost anywhere, either below or above ground, either inside the plant or outside. It's fully automatic—continuously replenishes whatever amounts of brine are drawn off through the piping system to points of use. And it needs no maintenance.

Another money-saving feature: with the Storage Lixator, brine-storage tanks are rarely necessary. This is because International's Lixate principle, on which every Storage Lixator is based, makes use of "Wet Storage"—meaning that undissolved salt is stored in the same tank with saturated brine. Even when the Lixator is completely filled with salt, there is ample room between the salt crystals for storing fully saturated brine.

The operation of every Storage Lixator is basically the same, but there are many design possibilities, by which International's Lixate principle can be adapted to any plant requirements. Here are some typical Storage Lixators, showing how they are engineered to meet specific needs.

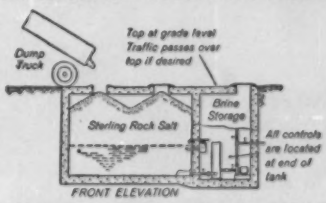
1. The Inside Single-Compartment Storage Lixator . . . ideal for congested areas where outside property is not available.



Salt is dumped from a truck directly into the dissolving chamber (the Lixator is just inside the plant wall), and salt-handling costs are reduced. The Lixator controls are easily accessible from inside the plant.

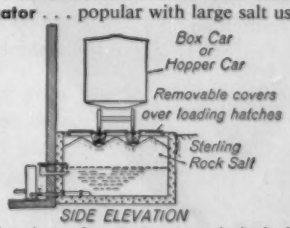
2. The Shed-Type Storage Lixator is very practical for small-scale storage and dissolving operations when space is available adjoining the plant building. Large doors permit easy salt entry by portable conveyor belt fed directly from a dump truck or railroad car. With this setup, any available space can be used for an inexpensive brine-making unit inside the shed.

3. The Integral Brine Tank Storage Lixator . . . one of the best for manufacturing operations which require large amounts of fully saturated brine only at certain times. (The brine-storage tank included in the Lixator can be made as large as necessary.) Because the top of this Lixator is at ground level, traffic can pass over it—and delivery trucks can pour salt directly into the loading manholes.


Dump Truck
Top at grade level. Traffic passes over top if desired
Brine Storage
Sterling Rock Salt
All controls are located at end of tank
FRONT ELEVATION

4. The Underground-Tank Storage Lixator is a single-compartment rock-salt storage and dissolving unit which adjoins a railroad siding. With the top of the Lixator on the same level as the floor of the railroad car, salt delivery by power scoop, or portable conveyor belt is an easy operation. Fully saturated brine, made automatically in this Lixator, can be pumped any distance to the points of use.

5. The Undertrack Dual-Unit Storage Lixator . . . popular with large salt users.



It has been found that its relatively high installed cost is more than offset by the most inexpensive salt delivery method known today (and possible only with this undertrack design). A railroad hopper car passes over the Lixator, and salt drops directly into storage. No conveyor belt is needed, and salt delivery is entirely automatic.

6. The Dual-Compartment Storage Lixator is designed for plants which use exceptionally large amounts of saturated brine. There are two separate dissolving compartments, storing an ample supply of brine for every need. The control room is located between the two storage and dissolving chambers. This unit, with its extra-large storage capacity, permits very economical purchasing and handling of salt.

There are many other types and designs of Storage Lixators—along with numerous refinements to suit your particular needs.

TECHNICAL SERVICE WITH YOUR SALT

Through skilled and experienced "Salt Specialists," International can help you get greater efficiency and economy from the salt you use. International produces both Sterling Evaporated and Sterling Rock Salt in all types and sizes. And we also make automatic dissolvers in metal or plastic for both kinds of salt. So we can recommend the type and size of salt most perfectly suited to your needs.

If you'd like the assistance of an International "Salt Specialist" on any problem concerning salt or brine—or further information on Storage Lixators—just contact your nearest International sales office.

International Salt Co., Scranton, Pa.

Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; and Richmond, Va.

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U. S.-European export-import balance, which areas in Western Europe are the best business prospects, and why.

Detailed analyses of the economics of 21 countries help the reader judge the respective markets for his products; and much market information compiled by J. Walter Thompson Co. aids in classifying the markets from excellent to insignificant for many manufacturers.

A final section of the book provides sources of basic information, lists European advertising media, notes the important industrial fairs, and gives cost-of-living comparisons.

BETTER WAGE INCENTIVES, by Phil Carroll; McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y.; 240 pages, $4.75.

Wage incentives for supervisors and indirect labor are the principal subjects of this book. In showing how to set up a good incentive program for these groups, the author emphasizes methods of preventing grievances arising from incentive systems. The chief causes of grievances are outlined, and suggestions for their solution are given.

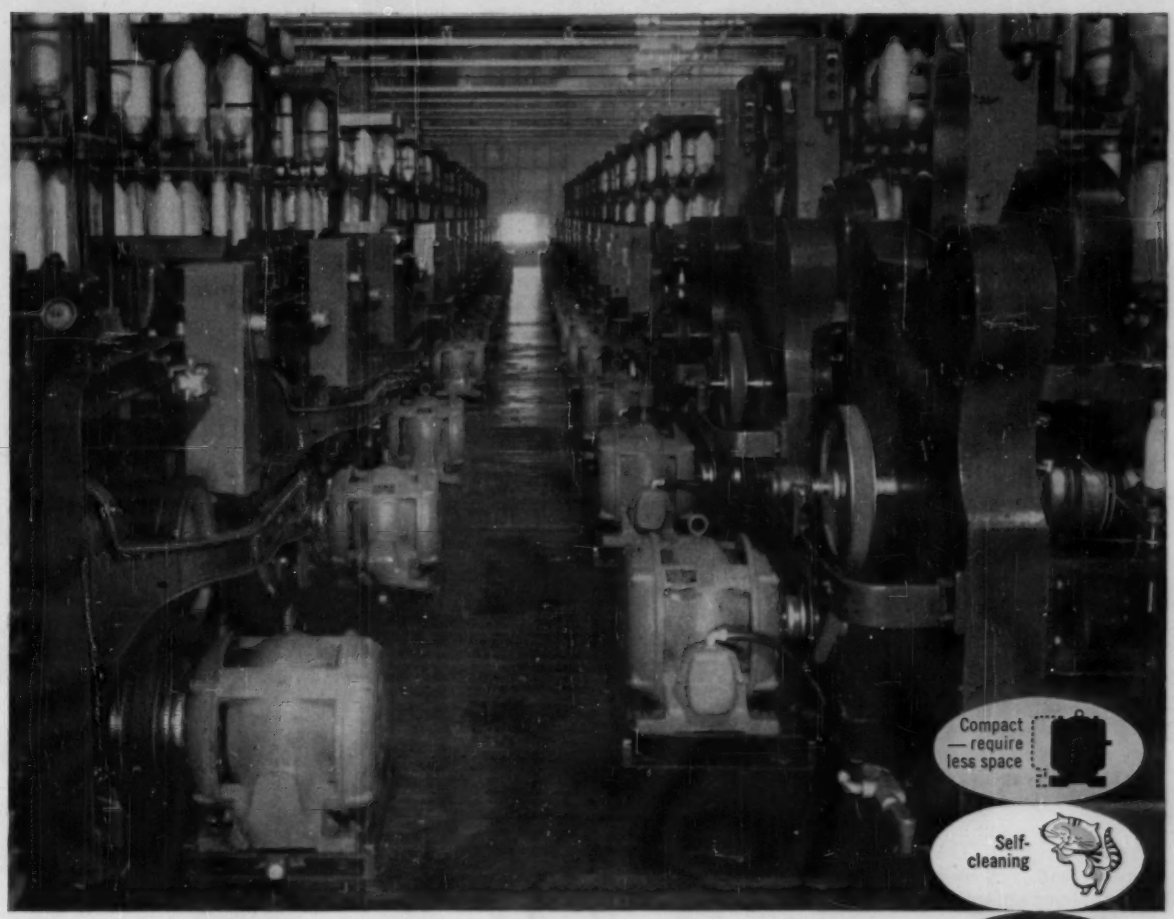
How to start an incentive plan, how to prepare for arbitration regarding such plans, and the economics of incentive plans are gone into thoroughly.

MANAGEMENT AND THE MANPOWER OUTLOOK, by Dr. John R. Steelman; Research Div., California Personnel Management Assn., 2180 Milvia St., Berkeley 4, Calif. Management Report No. 234, lithographed; 12 pages, $1.

In this address given before the California Personnel Management Assn., Dr. Steelman stresses the fact that our technological advances in the last 25 years, and those that we can reasonably expect to develop in the future, leave us with the primary task of using manpower most effectively if we are to maintain our present position of world leadership.

Manpower, properly trained and employed, enabled the U. S. to take the Korean war in stride, with few dislocations in consumer-goods supplies; but the author warns against complacency in the face of the potential production power of Russia, where graduates in the engineering and scientific fields already outnumber ours and bid fair to maintain that lead.

Dr. Steelman concludes that manpower and management are our two most critical resources.



These motors expand floor space

Compact Louis Allis Self-Cleaning textile motors reclaim a foot of width per motor-alley installation

Here's your chance to beat the space squeeze in your mill: Louis Allis compact, space-saving type KT self-cleaning textile motors are a half-foot shorter than other designs. You gain a foot of usable space between motor lines . . . a yard per six rows of motors.

With this added width, your motor alley becomes a usable aisle. Personnel have ready access to equipment for faster, safer servicing. Or the aisle can be used to simplify materials handling to and from machines.

Reclaimed space permits rearrangement of your machines to improve efficiency and to increase capacity. This more than compensates for the small additional cost of these special motors. With these compact motors in your motor alleys, you can gain enough space to install an additional line of spinning frames, roving frames, cards, pickers, slubbers, or other machines.

In addition, the Louis Allis two-torque "soft start" design gives you that easy start so vital to reducing "ends down" time when handling untwisted ends on roving frames.

These Louis Allis motors are self-cleaning. Dust and lint cannot adhere to their extra-smooth surfaces . . . effective ventilation and open-end design pass lint through easily. And skewed rotor design reduces the noise level—important in multiple-motor installations.

For additional information, contact your Louis Allis District Office and ask for Bulletin 801. Or write The Louis Allis Co., 443 E. Stewart St., Milwaukee 1, Wis.

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CONTINUED FROM PAGE 132

Slubbing roving enters the regular back rolls through the regular trumpet on the traversing roving guide, as shown in Fig. 5, after it passes through the fourth set of rolls. Here the slubbing-roving joins the spinning roving. This arrangement permits the slubbing roving to be drafted by the regular drafting rolls of the spinning frame. The setup generally gives a smoother slub and good-quality yarn because the fibers of the slub are spun into the spinning stock more securely.

Drafting Element Is Unchanged

With Method 3, it is not necessary to alter the drafting element of the spinning frame. The fourth roll is added behind the regular back roll by using an auxiliary stand.

The fourth roll receives its motion from a tight sprocket (fastened to the front roll) through the slubbing chain to the compound sprocket attached to the fourth roll, as shown in Fig. 6.

A three-tiered creel holds the slubbing roving on the bottom tier and the spinning roving on the second and third tiers. Fig. 5 shows how the spinning roving is guided by rods and the slubbing roving is pulled directly into the special traversing roving guide behind the fourth roll. This guide is synchronized to deliver the slubbing roving into the mouth of the regular trumpet on the traversing roving guide when the fourth roll is activated.

It may be necessary to enlarge the opening in the regular trumpet or to change the guide so that it will readily take the increased amount of stock. The regular drafting rolls have a normal weighting system. The fourth roll is dead weighted with a hook and weight.

The position of the regular roll stand is shown in relation to the auxiliary roll stand that is attached to the frame. This arrangement can be made by bolting or welding or by using a special four-roll stand that can be cast and milled.

Proper leveling and aligning of the auxiliary rolls are essential to prevent mechanical and manufacturing problems that may lower yarn quality.

General Pointers On Spinning Slubs

Regardless of the method used, the spinning frame should be thoroughly overhauled and all worn gearing, studs, roll necks, stands, loose joints, and other bad parts replaced before the slubbing attachments are added.

Best results will be obtained if square-neck rolls are used for the slubbing rolls; and these rolls should be thoroughly inspected for loose joints. Square-neck rolls also give good results where the foot-end chain drive is used.

Constant inspection of the mechanical equipment and the yarn as it is being spun are necessary for good yarn quality. Spindles should be checked thoroughly to see if they are plumbed properly because the slub in the yarn produces an irregular balloon that causes the yarn to whip and break more readily if the spindles are out of plumb. It may be necessary to raise the tail of the thread guide

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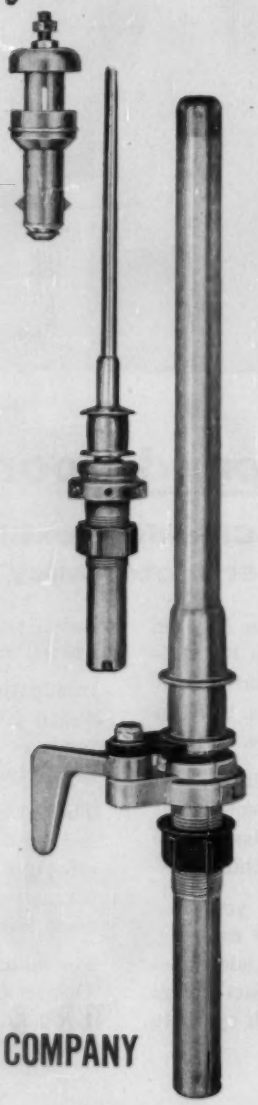

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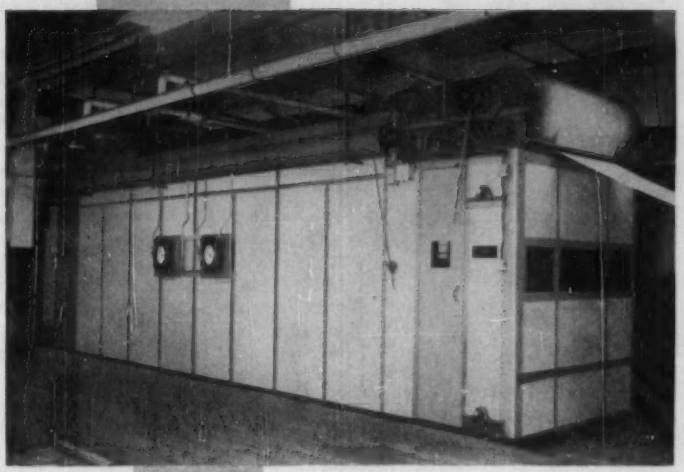
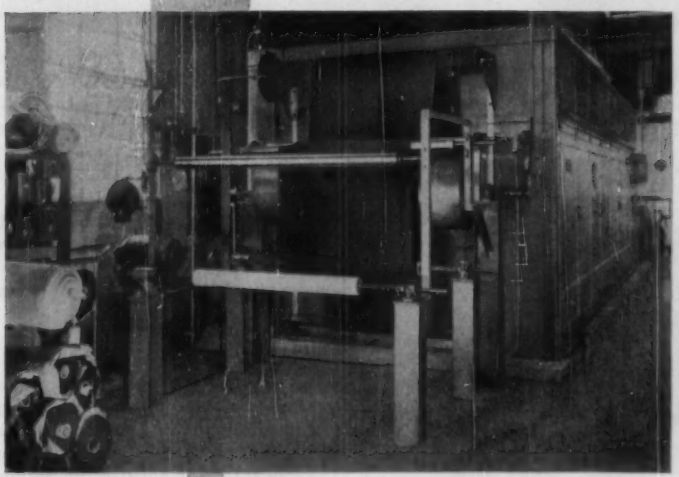


Proctor Loop Curer



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to prevent it from catching the balloon of the slub and breaking the end.

The twist of splice-slub yarn is very important and should receive special attention. Tests probably will show that the twist differs from regular yarn, and several experiments may be necessary before arriving at a satisfactory twist. The slub-yarn stock, being heavier and larger in diameter, may cause the twist to run into the lighter stock between the slubs and cause wiry or kinky yarn.

Excessive twist can cause sloughing off and waste. In some instances, it is necessary to condition the slub yarn before winding or weaving. Conditioning can be done either with steam or with a twist setter.

Many Factors Affect Draft

Draft is determined by the method used for spinning the yarn, the type of drafting elements used, the stock to be processed, and the length of the staple. Generally, shorter drafts give better results.

Draft for Method 1 should be comparatively short. Method 2 permits a somewhat longer draft. Method 3 drafts are approximately the regular drafts of the spinning element. Excessive draft usually causes thin places behind the slub, ends down, and lower yarn quality. The amount of weight on the rolls also must be considered when drafts are set up.

Travelers play an important role in the spinning of splice-slub yarn. It usually is necessary to experiment with travelers to find the one that gives the best results. The kind of stock spun, the type and size of the rings, the length of the slub, the frequency of the slubs, and the size of the yarn all affect the kind, weight, and circle of the traveler to be used.

The length of the bobbin, the length of the stroke, and the type of build also must be considered in selecting travelers. The lay and the build require special attention, and mechanical changes may be necessary to obtain the best results.

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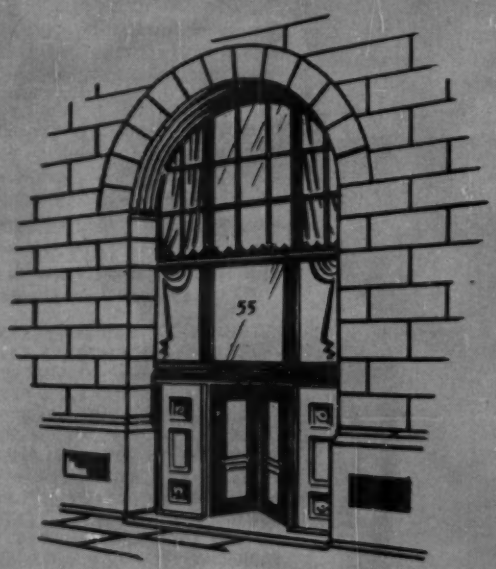

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YARN TENSION

CONTINUED FROM PAGE 105

The first diagram (Fig. 1a) shows the yarn tension without air resistance, and the second diagram (Fig. 1b) shows the influence of air resistance. The yarn tension without air resistance is proportional to the height of the balloon and the diameter of the bobbin to the square of the spindle speed and the yarn denier.

According to the first diagram, the air resistance is taken into account by a factor that is proportional to the diameter of the bobbin. As the air resistance increases, the yarn deviates more from the vertical. This deviation is expressed by the angle B°.

A study of many measurements made it possible to establish the error in determining yarn tension with a nomogram within ± 12%, which is enough for practical purposes.

Bell Twisters Can Be Figured

Bell twisters are used only for special cases such as the continuous spinning of viscose yarns. The tension in the balloon is exactly the same as in the uptwister if the diameter of the bobbin is equal to the diameter of the bell.

The maximum yarn tension occurs between the bell edge and the bobbin and is equal to the balloon tension increased by the friction at the bell edge. The yarn is not pulled toward the center of the bell but at a tangent to the bobbin. Another force, which differs according to the diameter of the bobbin, is introduced here.

The yarn tension increases with

at Woodside Mills, Liberty, South Carolina...

Stainless steel is a "must" for dye equipment

Corrosive dye chemicals, including caustic soda, muriatic acid, and sulfuric acid, are in contact with this 4-kier beam and package dyeing machine at Woodside Mills. But the equipment fights off corrosion, even at welds, because it is made of Armco 18-8 ELC Stainless Steel.

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To insure extra life in contact with corrosive dye chemicals, the 4-kier beam and package dyer above was made from Armco 18-8 ELC (Type 304L) Stainless Steel. Because this special grade contains very little carbon (.03 max.), carbide precipitation adjacent to weld beads is minimized. This means that weld areas fight off corrosion just as well as the rest of the stainless steel, even at dye machine operating temperatures.

If corrosion alongside welds is a major maintenance problem in your mill, ask for information about Armco 18-8 ELC and its even more corrosion-resistant companion grade—18-12 Mo ELC Stainless Steel. For more data, just fill in and mail the coupon.

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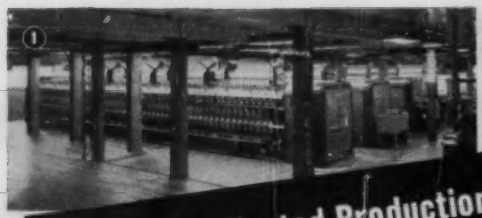

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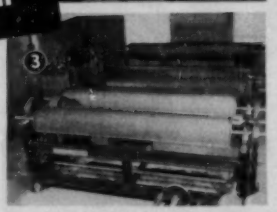

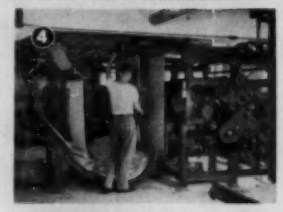

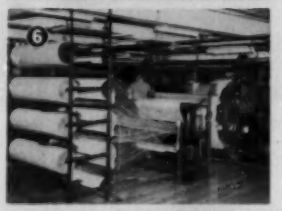

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Begin with a request for a D&F "Coordinated Production" in-the-mill survey. The confidential study and analysis that results often produces recommendations which can tie D&F right into your production requirements. At the same time, D&F will recommend any accessories, spare parts or supplies that may be needed.

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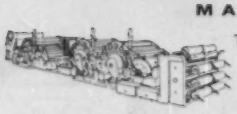

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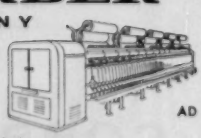

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larger bobbin diameters. From the coefficient of friction on the edge of the bell, we can determine values indicated in Fig. 2.

Traveler Affects Ring Twisters

Aside from the centrifugal forces of the traveler on ring twisters, the yarn tensions in the balloon can be entirely disregarded. With a traveler of 24 mg. on a 4-in.-dia. ring and a spindle speed of 10,000 rpm., the centrifugal force is 145 grams. The yarn tension on the balloon for 60-den. yarns is only six grams, or 4%.

The influence of the coefficient of friction of the traveler, however, is very substantial because the traveler must be dragged along by the yarn. This value, if the traveler is well lubricated, is dependent first on the speed of the traveler.

Here are the coefficients of friction between the traveler and the ring for various speeds:

Traveler speed (meters per second)	Coefficient of friction (u)
15	0.18
25	0.125
35	0.095
50	0.07
65	0.058

The influence of the bobbin diameter intervenes again here. The yarn tension decreases as the bobbin gets larger. This tension is therefore inversely proportional to the diameter of the bobbin as shown in Fig. 3a and Fig. 3b.

How Double Twisters Are Figured

In spite of attractive advantages, the double-twister spindle is not recommended for fine-denier yarns although it does give satisfactory results for twisting cord. A prerequisite for the satisfactory operation of the double-twister spindle is that the yarn forces in the balloon and those of the yarn coming out of the storage pulley are in balance.

The highest yarn tension in this case is always found in the balloon. If the run-off tension from the inside is smaller than the balloon tension, the yarn clings more to the storage pulley so that the run-off tension also increases because of the increased friction.

In other respects, the thread tension is constant since the run-off diameter of the storage pulley and the balloon height remain constant. As a result, the determination of the yarn tension is the same as for uptwisters.

The height of the balloon is measured in inches from the run-off point of the bobbin or ring to the thread guide. The diameter of the bobbin is measured in inches from the run-off point or the ring diameter.

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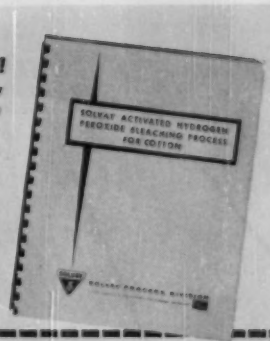

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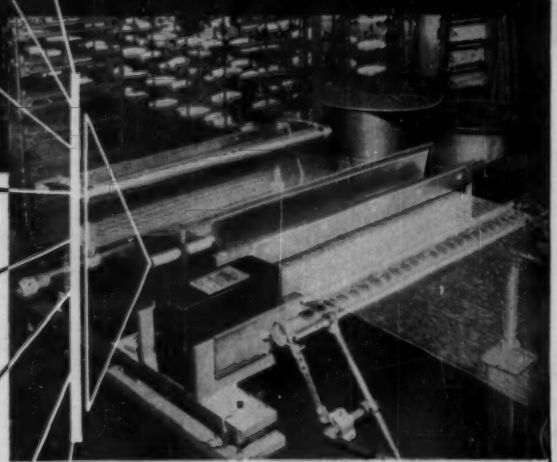

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UNUSUAL FABRICS

CONTINUED FROM PAGE 142

Pieces of the woven fabric processed on the Schiffli machine are 54 ins. wide and 10 yds. long. The 10-yd.-long machine has 144 needles.

In addition to the normal needle and under thread for embroidery, there is an extra finger attachment working above each needle. The finger attachment lays the third yarn on the fabric, which is stitched in by the needle thread.

An automatic jacquard attachment moves the frame holding the fabric. The finger attachments are moved at the same time to produce a design on the cloth. These movements are designed to accomplish a random effect on the Dynacurl cloth that shows no repeat.

The design mechanism can be controlled so that the extra design thread is not laid in for certain periods. The embroidery threads continue to produce their regular design.

Machines Make 300 Yds. Daily

Working on a three-shift basis, each machine produces up to 300 yds. of Dynacurl fabric per day. There are seven machines installed at Multitex.

The machines have been adapted to take extra-large packages, which revolve on creels in front of the machine. The spools that contain the Dynel yarn for the Persian-lamb effects have an 8-in. traverse and 4½-in.-dia. heads.

This yarn is chenille yarn treated in curling machines designed at Multitex. The chenille yarn, which has a diameter of ¼ in., is made by twisting 2,200-den. Dynel around a core of 20/3 cotton yarn.

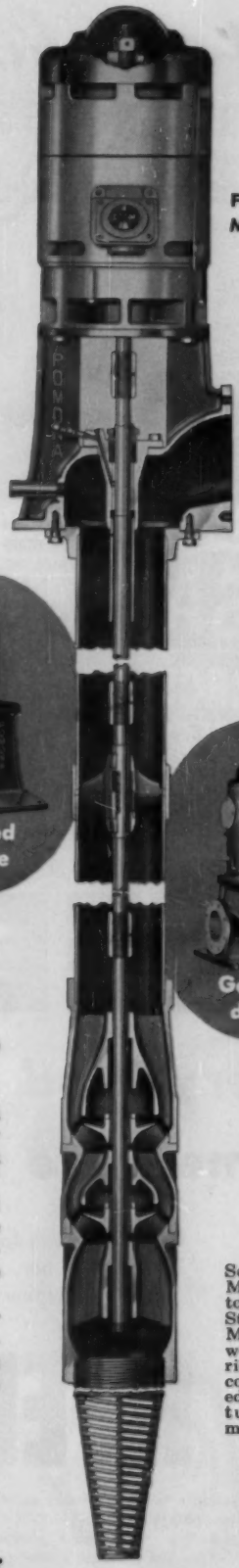
This chenille yarn is fed to sliver cans, which are put up behind the curling machine. About 60 yarns are processed on one curling machine at the same time.

The yarn is fed from the cans through ridged metal tubes. Mechanical action controls the curling, and the curls are heat-set in the machine. Curled yarn is drawn from the heat-setting unit by rotating rolls and deposited in sliver cans at the front of the machine.

The curled yarn is then wound on the 8x4½-in. spools to be processed on the Shiffli machine. Each spool holds 14 oz. of yarn. Each curling machine produces about 500 lbs. of yarn per day.

So far, the Dynacurl fabric has been produced only in black; but fabrics in other colors are to be developed.

You'll want to look into this pump



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CELLULOSE REACTIVITY

CONTINUED FROM PAGE 123

hygroscopity is increased and a more or less permanent increase in reactivity can be expected.

The effects of previous dryings under any conditions are reduced when cotton is treated with swelling agents such as caustic soda, as in mercerizing. Mercerizing opens up the fiber structure so that there are many more hydroxyl groups available for combining with water, dyes, or other chemicals.

However, when wet cotton is treated with acetic anhydride to form cellulose acetate, the picture changes. Dry mercerized cotton acetylizes slowly, and dry regenerated cellulose very slowly indeed. The natural cotton acetylizes fastest of all.

To restore the mercerized or regenerated cellulose to the expected reactivity, it is necessary only to wash them with acetic acid; then the regenerated cellulose acetylizes rapidly, the mercerized cellulose at a moderate rate, and unmercerized cellulose the slowest.

The acetic-acid treatment is an example of the substitution of water by an organic substance to promote reactivity. Other materials produce increased reactivity when they are similarly substituted for water.

The explanations for the reversal effect are not easily come by, but all the studies made tend to bear out the fact that after any chemical pretreatment to increase reactivity of the cellulose, it is better to keep the cellulose wet between processing steps. Water or organic liquids have similar effects in maintaining the reactivity of the hydroxyl groups.

WASH & WEAR PERFORMANCE

CONTINUED FROM PAGE 124

fabrics from all sources. The wide variety of finishes confuses the consumer. Retailers view some types of wash-and-wear very dimly.

"Wild claims are doing the business harm because the garments are not truly wash-and-wear. Consumers like the idea of reduced ironing required, but producers should be strictly honest in advertising and should improve performance."

Paul Di Bianco, Cluett, Peabody & Co.—"Hand washing and drip-drying gets the best results. Discoloration after laundering and reduced lightfastness are problems to be licked. Chlorine damage is a very real threat and often shows up after several launder-

Here's all it takes

TO CONVERT THIS NEW WESTINGHOUSE COMBINATION LINESTARTER FROM NON-FUSED TO FUSED!

or change fuse clip ratings from 30 to 400 amp

This is flexibility!

This is the new Westinghouse combination Life-Linestarter® with the Visi-Flex switch! . . . the convertible switch that enables you to modify the new Westinghouse combination linestarters (in sizes 0 through 4) to meet both your present and future power requirements by simply adding or changing a set of fuse clips.

All it takes is a screwdriver, a Westinghouse Fuse Clip Kit, and about five minutes of your electrician's time to change from non-fused operation to fusible, or to vary fuse ratings from 30 through 200 amps 600 volts, and 400 amps 250 volts, over a range of four switch sizes.

What's more, the new Westinghouse Life-Linestarters with Visi-Flex switch are up to 25% smaller than the old design—good news for plant engineers with a space problem.

For plants which face adverse operating conditions involving lint, dust, or oil seepage, the new linestarters are available in the NEMA-12 dust-tight enclosure, as well as the standard NEMA-1 shown at right. And—they're available *now*, from local warehouse stocks. Simply call your nearby Westinghouse sales office or distributor. J 30284

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AURORA® Vertical Sump Pumps are 'TOPS'

HEAVY DUTY and LIGHT DUTY

ALSO NON-CLOG SIZES UP TO 8"

AURORA Always PUMPS
For all sump drainage; liquids handling in industry; transfer of chemical and hot liquids; handling viscous or high temperature liquids; boiler blow-off; heating returns etc.; also for handling screened and unscreened sewage and industrial waste.
Write for
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(Heavy Duty & Non Clog)
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(Light Duty)
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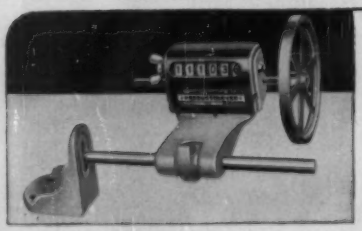
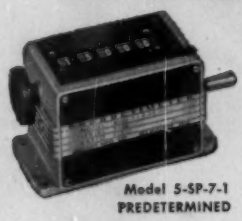
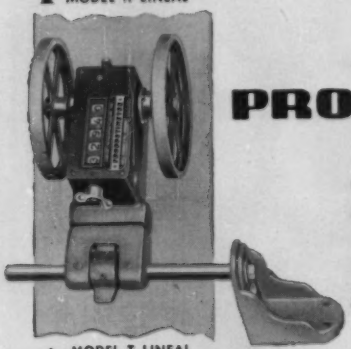
EXPORT DEPARTMENT — Aurora, Illinois — Cable Address "NYABINT"



▲ MODEL H LINEAL



Model 5-SP-7-1
PREDETERMINED



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▲ MODEL T LINEAL
▼ MODEL D LINEAL

Model 5-H-7-1-R
END DRIVE ROTARY

ings, particularly on men's shirts.

"There is a need for standard tests pertinent to actual conditions to which the articles are exposed by the consumer. Abrasion is a severe problem in some cases."

Harley Jennings, Dan River Mills—"It is necessary to touch up wash-and-wear finishes with an iron, and I stressed this point two years ago. Generally, the better the crease resistance, the poorer the fabric from the consumer's standpoint at this time, at least in respect to wearing qualities.

"Standards of performance that mean something to the consumer are necessary. Erratic performance is confusing the consumer at present."

C. E. Grandey, FTC—"What we need is statesmen in industry—producers who will work toward better products, honestly advertised and clearly labeled. The consumer is confused today by the multitude of fibers and finishes."

George Wham, Good Housekeeping—"AATCC now has many laboratories working toward satisfactory test methods for evaluating wash-and-wear finishes. The work should turn up test methods that will be translatable in consumer satisfaction.

"Consumers like wash-and-wear, but 88% report hand ironing is necessary. Drip-dry is a dead duck. People are buying washer-dryer combinations and don't like the bathtub cluttered with dripping garments. There is a need for true wash-and-wear finishes that can be handled in automatic equipment in the home."

MAINTAIN LAMPS

CONTINUED FROM PAGE 102

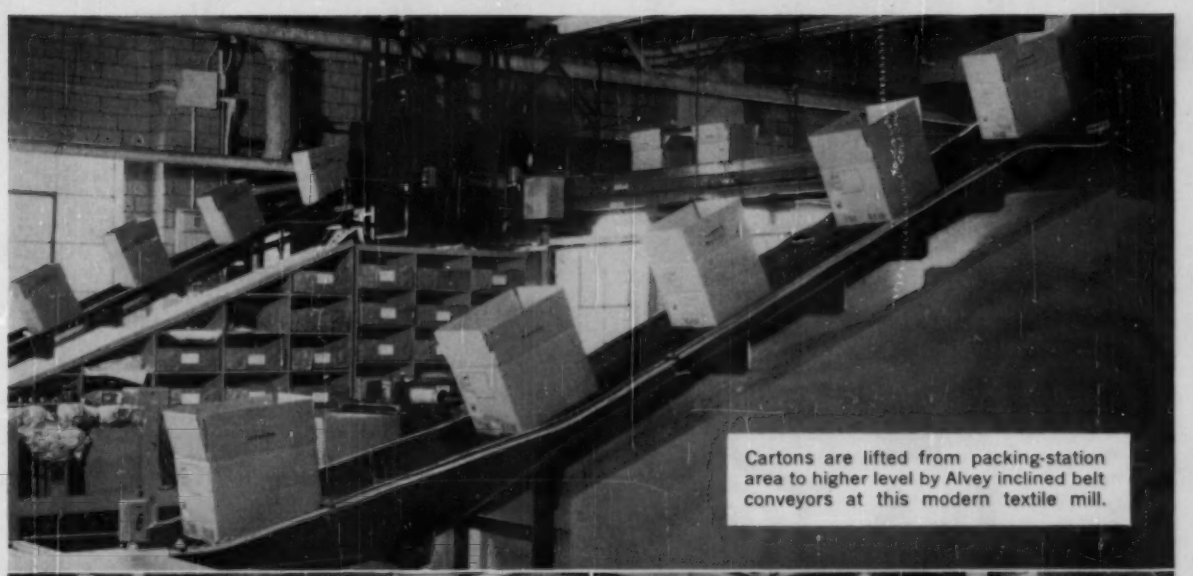
used to replace burn-outs until the next group-replacement time.

Why Replace by Groups?

By group replacement of lamps at 80% of life, 61 individual spot replacements are eliminated on the average-size installation. And in many installations, the cost of replacing a burned-out lamp is more than the cost of the lamp.

A breakdown of the average operating expense for an installation of 40-w. fluorescent lamps shows (1) electricity takes 70% of the lighting dollar, (2) labor takes 20%, and (3) the lamps take only 10%. By replacing lamps at established intervals, between 60 and 85% of the labor dollars are saved.

But the greatest advantage of group replacement is that higher illumination is maintained.



Cartons are lifted from packing-station area to higher level by Alvey inclined belt conveyors at this modern textile mill.

At left, cases are weighed and checked along spur branch lines, then moved onto belt conveyor en route to storage or shipping. "Traffic cop" (at right) assures smooth textile traffic flow by giving right-of-way to one packing case and halting the other until intersection is clear.

in textile mills . . . profits get a big lift . . . when you install an ALVEY conveyor system

Your profits just naturally *go up* . . . because your materials handling costs *go down* . . . when you install a completely integrated, Alvey-Engineered conveyor system. Bales . . . bolts . . . bobbins . . . doff boxes . . . rolls . . . cartons . . . all move smoothly, efficiently, safely, via Alvey. Thoroughly experienced in textile mill operations, Alvey engineers apply their training and skill in analyzing your plant operations. Then, they recommend a conveyor system that meets your needs.

Lower your handling costs, speed up production, and widen your profit margin . . . call in an Alvey engineer to study your individual problem. There's *no obligation* for *consultation!*

ALVEY

303

ALVEY CONVEYOR MANUFACTURING COMPANY

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MACHINE CO., INC.
2231 E. Ontario Street
Philadelphia 34, Pa.

LIGHTING AFFECTS WORKERS

CONTINUED FROM PAGE 103

comfortable-colored floors, walls, and ceilings.

Two Areas Are Lighted Best

In general, mill men assume that only two areas in a mill need a high level of illumination. These areas are spinning rooms and weave rooms. Illumination is considered extremely important in these two departments because ends are pieced; and the sooner an end is pieced, the sooner a spindle or loom is back in production.

Increasingly higher levels of illumination are used in weave rooms as the fabric is changed from white to colored. The eye needs longer to adjust in deciding whether colors match when ends are pieced on colored goods than on white fabrics.

Spinning Requires the Best Lights

Higher illuminating levels are becoming more important in spinning rooms with the installation of overhead cleaners, suction cleaning, and umbrella creels.

More fixtures are necessary to provide a higher level of good-quality illumination to get the same amount of light because the spinning-frame improvements absorb so much of the light. For example, an installation of fixtures that produces 50 ft.-cs. in a weave room will produce only 35 ft.-cs. in a spinning room.

Although there is no way to measure how good lighting affects a worker's efficiency, adequate lighting definitely improves the quality of production, makes higher production possible, reduces personal injury, and improves employees' morale.

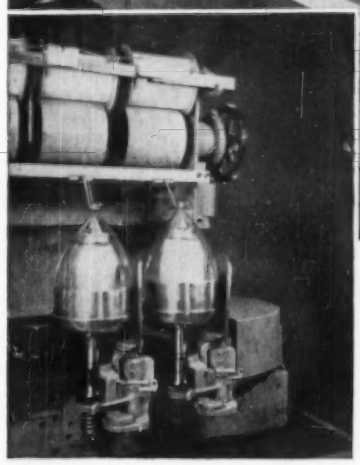
PLANT COMMUNICATIONS

CONTINUED FROM PAGE 143

MODERATOR: What kind of communications system do you have for new employees?

MEMBER: We have the personnel staff inform new employees of insurance coverage, vacations, safety rules, and other like subjects. The overseer and second hand tell him all about working schedules, pay, job requirements, and other matters.

MODERATOR: Don't you think that follow-up is just as important as



From Laboratory to Twister . . .

Allegheny Stainless Steel *assures* uniformity and top quality

From start to finish, Allegheny Stainless is the first choice for top performance in the textile industry.

Here's why: Stainless steel protects against off colors in the dyeing and finishing department because it cleans up easily and quickly from batch to batch, leaving no traces of the previous dyes.

In yarn twisters and other equipment in the weaving department, Allegheny Stainless provides the hard, smooth surface and high abrasion-resistance that protects against snagging and binding.

In fact, whether it be in the wet or dry end of the mill, stainless steel does the tough jobs. In the card room, in warp preparation, at the slasher, or in the weave room you will find stainless steel at work.

It is stainless steel's unique combination of advantages that makes it the natural choice for applications where ease of cleaning, hardness, smoothness, resistance to abrasion, corrosion resistance and long, dependable life are important. *No other metal can match stainless steel in these qualities.*

Allegheny Ludlum produces stainless steel in every form and shape that you may require. • Let us help you to use it.

Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.

Write for your copy of
"REPORT TO THE TEXTILE INDUSTRY"

Fully illustrated, forty page booklet that covers applications of stainless steel in all phases of the textile industry. Includes a complete section on the technology of stainless steel.

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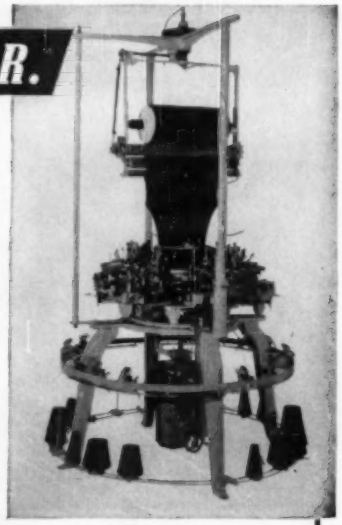
ALL NEW...

TOMPKINS S-1 JR.

MAKES THE MOST PERFECT CLOTH POSSIBLE



HERE'S A TYPICAL EXAMPLE...

Model S-1 Junior making fleece with 400-lbs. of Carter 26's and 8's —five feeds, 18" cylinder, running time 68-turns per minute . . .

- **MINIMUM OF IMPERFECTIONS AND BROKEN NEEDLES**

You can produce any class of cloth in the wide range of circular spring needle knitting—in greater quantity, with less waste and less needle breakage—on the New S-1 Junior! It gives you the proven Tompkins system in fully modern form . . . with triple stop motions, furnishing wheels, new gearless drive, automatic oiler and air cleaner! Get the full story now . . . be among the first to profit!

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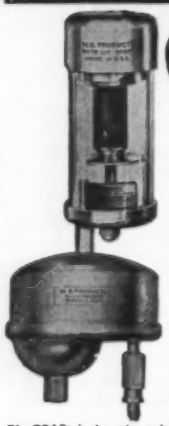
Makers of Circular Spring and Latch Needle Knitting Machinery...Since 1846

GREATER PROTECTION to your AIR LINE!

M-B



AUTOMATIC WHIRL-A-WAY AIR LINE FILTER MODEL W-1 and TRAP

The TRAP ejects water automatically. Operates upon accumulation of 3 to 4 ounces. Discharges in less than 5 seconds. Assures dry air in pneumatic system at all times. Non-corrosive throughout.

RIBBON TYPE FILTERING UNIT removes solids .00039 and larger. Transparent plastic bowl makes filtered foreign matter visible. Gives maximum protection to all types of Lint blowers, Blow-off Hoses and various air-operated controls.

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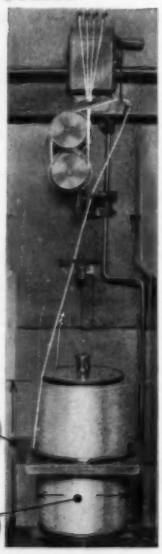
46 VICTOR AVE., Div. 16 DETROIT 3, MICHIGAN

THE NEW 5 POUND FLETCHER MASTER DUPLEX DOUBLER-TWISTER THREE STYLE PACKAGES



STRAIGHT

BOTTLE

9"

DOUBLE-TAPER

6"

THE FLETCHER WORKS INC.

2nd & GLENWOOD AVE. PHILADELPHIA 40, PA.

the preliminary instructions?

MEMBER: Yes. We give the new employee information about the job the first day and then follow up daily until he is fully acclimatized to the job. We also encourage him to ask questions.

MODERATOR: One thing that has been stressed in the last few years is the growing importance of the individual in industry. This panel discussion has shown that most of us present are aware of the part each individual plays in our operations and of the importance of keeping both employers and employees informed through improved communications methods.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 164

Cop Winder

Model 125 Supercop winder has been developed by Muschamp Textile Machinery Ltd., Keb Lane, Bardsley, Oldham, England, to wind coarse cotton, jute, condenser, asbestos, wool, and worsted yarns into a solid or hollow cop. The winder makes a package up to 20 ins. long.

Yarn can be drawn from the package over the nose or from inside the cop. The dynamically balanced carriage head is held in a neutral position during doffing. The yarn guide leaves the right side of the spindle free from obstruction.

The diameter and length of the cop can be changed easily, and the machine can be altered in the mill for left or right winding. The standard machine has 20 spindles and is built to a 10-in. pitch.

Circle T-24 on Reader-Service Card

Simplified Burling Table

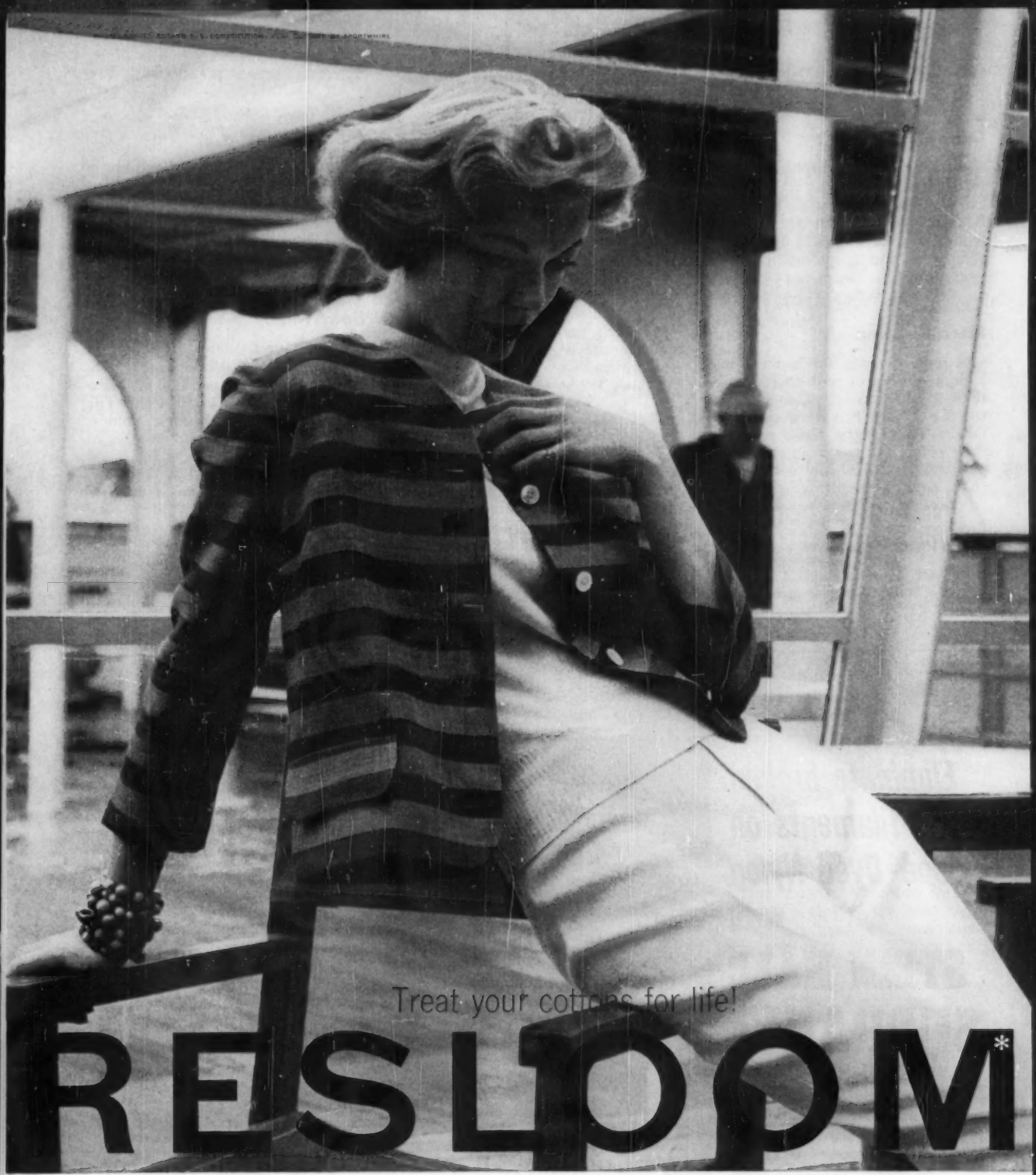
A burling table that will handle up to 700 yds. of fabric at one time has been marketed by Birch Bros., Inc., 32 Kent St., Somerville, Mass.

Cloth is drawn across the table by a draw roll powered by a ¾-hp. motor and is folded into a truck.

A full-length treadle controls the switchgear that actuates the variable-speed drive.

Circle T-25 on Reader-Service Card

CONTINUED ON PAGE 216



Monsanto E-50 cyclic urea resin gets inside fibers . . . won't wash out!

MONSANTO

*RESLOOM: REG. U. S. PAT. OFF.

Resloom E-50 doesn't coat the fabric. This cyclic urea resin "joins" it, penetrating into the fibers—actually modifying fiber characteristics. Repeated laundering can't shake the finish loose. Resloom-treated cottons require little ironing, stay crush resistant, won't shrink, sag, or stretch. Resloom finishes can be accurately controlled to create a wide variety of hand—from soft and full to firm and crisp.

Call in Monsanto for expert counsel on how to "treat your cottons for life." In addition to Resloom E-50, Monsanto also supplies melamine finishing resins, tradenamed Resloom HP and M-75. Also AC Catalysts for stepping up curing efficiency. For technical bulletin and experimental samples, write Monsanto Chemical Company, Plastics Division, Room 1904, Springfield 2, Massachusetts.

CONTINUED FROM PAGE 214

Control Switch

An adjustable-lever-actuated basic switch has been developed by Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill. The switch is made especially for timers, computers, and other multimounted switch devices.

Circle T-26 on Reader-Service Card

Mercury Lamp

A mercury lamp for medium and high mounting in industrial installations is announced by General Electric Co., Nela Park, Cleveland 12, Ohio. The 1,000-w. lamp comes in three colors and has an interior phosphor reflector, which directs two-thirds of the light downward.

Circle T-27 on Reader-Service Card

Hex-Head Wrenches

A set of wrenches for hex-head screws is being manufactured by Snap-on Tools Corp., Kenosha, Wis. The wrenches can be used with your socket-wrench handles, and they turn hard-to-reach screws safely and easily.

Circle T-28 on Reader-Service Card

Power Panel

A heavy-duty power-distribution panel board with rigidly mounted fusible switch units of the quick-make quick-break type is announced by General Electric Co., Plainville, Conn.

Circle T-29 on Reader-Service Card

Casters

Grease-sealed casters with neoprene vulcanized retainers have been introduced by Faultless Caster Corp., 1521 N. Garvin St., Evansville 7, Ind. The neoprene grease seal holds the lubricant in and keeps dirt and water out of the swivel bearing.

Circle T-30 on Reader-Service Card

Air Compressor

A rotary air compressor featuring a multithrust rotor blade and a contour-bored stator arrangement has been announced by Davey Compressor Co., Kent, Ohio. The compressor is made in several models from 2 to 5 hp.

Circle T-31 on Reader-Service Card

Gear Motor

A high-speed motor with built-in gearing has been developed by U.S. Electrical Motors, Inc., 200 E. Slawson Ave., Los Angeles 54, Calif. The motors are made with single, double, and triple reductions and in sizes of ¼ to 30 hp. Speeds are 10 to 10,000 rpm.

Circle T-32 on Reader-Service Card

Chlorine Detector

An instrument that detects as little as three parts per million of chlorine

CONTINUED ON PAGE 220

Eliminate broken filaments on Dope-Dyed Nylon with

STEIN HALL SUPRANYL

Supranyl possesses unusual adhesion properties for dope-dyed yarn where the normal polyacrylic sizes fail to render adequate loom protection against broken filaments. Light amber in color, it is readily removable in the scouring bath.

*Above material extracted from Stein Hall Technical Bulletin. Available on request.

STEIN HALL SUPRANYL*
SPECIFICATIONS:
BASE: Solution of copolymerized organic acids.
VISCOSITY: 800 plus or minus 200 cps. Brookfield at 20°C.
pH: 1
ACTIVE INGREDIENTS: 30% minimum.
COLOR: Clear to light amber.
WEIGHT PER GALLON: 9.6 pounds.
MECHANICAL STABILITY: Very good.
STORAGE LIFE: Minimum 6 months.
APPLICATION:
In the sizing of dope-dyed nylon yarns, Supranyl is diluted with cold or lukewarm water to a 2-7% concentration, depending upon the twist, denier, number of filaments in the yarn, and construction of the fabric to be woven.
Supranyl is the only warp size which adheres properly to dope-dyed nylon and covers the yarn throughout. Supranyl is the only warp size that provides adequate loom protection for dope-dyed nylon as well as natural yarns.
Field tests prove better adhesion for Supranyl than any other dope-dyed filament nylon size. Prove it to yourself. Contact Stein Hall today and our qualified technical salesman will be glad to set up a trial run in your plant.
STEIN SH HALL
285 MADISON AVENUE - NEW YORK 17 N. Y.

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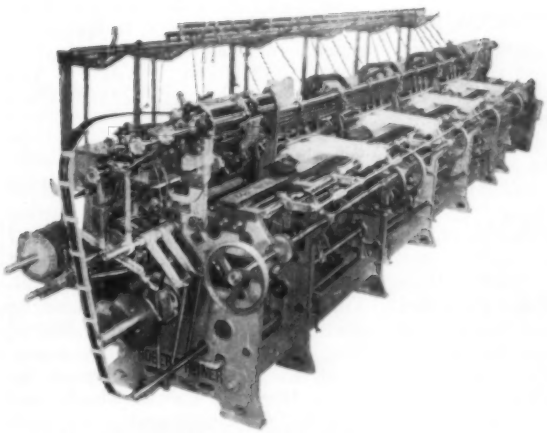
For Unmatched Quality in Knitting - and Making Collars, Trim, etc.

Reiner offers AN UNBEATABLE COMBINATION OF MACHINES

the full fashioned *Sweater Knitter* and the world-famous *Schaffhouse Flat Power* machine



This **Garment Machine** is ideal for either a small or large plant, big or small orders. It is a complete, versatile unit of four sections, only twenty feet long, which makes it suitable for U-type setups. Fully automatic (except for topping), without gadgets or hand controls, it gives unexcelled production in either 28" or 32" widths.

Now available with filler points, striper and looper marking device. **9 gauge for bulkies.**

The **Schaffhouse Flat Power Machine** makes a perfect team mate for the Reiner Garment Machine. Fast, efficient, and rugged, this precision-built unit is designed expressly for collars and trimmings for full fashioned as well as cut-and-sewn garments. Up to twenty needles per inch up to 60" width. Many other unique features.

Available with double lock and double heads, one or two-speed motors.

The same high standards of machine performance and workmanship are guaranteed whenever we act as agents for other concerns. Spare parts are available for all our equipment at all times.

Write For Complete Details

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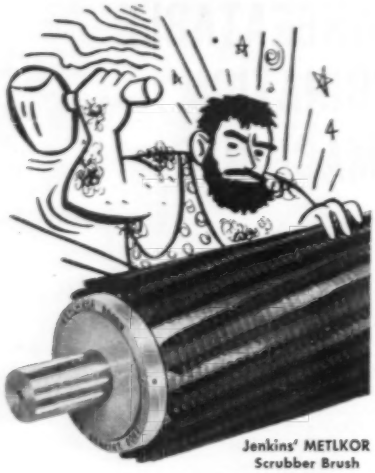
(Only 10 minutes from Times Square by direct bus)

Is this the World's

Toughest Test

For Brushes?



Jenkins' METLKOR Scrubber Brush

When Dewey and Almy Chemical Company developed their high-speed blanket printing process "DAREX VERSA-PRINT" a difficult problem arose. Colors picked up by the "DAREX" embossed blanket had to be removed with each turn around . . . colors that contained gums, resins, rubbers, etc. They had to be removed by solvents, detergents and high pressure water sprays at washing and drying speeds of 180 yards a minute. A special automatic machine, the "DAREX" washer was developed, in which seven specially designed Jenkins' METLKOR brushes are used.

The DAREX Model ND Blanket Washer Unit

CRUCIAL TEST FOR JENKINS' BRUSHES

"It is difficult to imagine conditions more severe than for the first three scrubbing brushes in this machine," states Mr. H. H. Bailey, Sales Manager of Printing Products Division of Dewey and Almy Chemical Co., Div. of W. R. Grace and Co. "Temperatures range from 40° to 212°F. Vapors range from saturated steam to mixtures including high percentages of mineral and organic solvents, caustics and acids. At speeds up to 1300 rpm the brushes must not vibrate. Jenkins' brushes are more than equal to these requirements and provide long and satisfactory life."

Specify Jenkins' METLKOR . . . the original . . . the best Metal-Core Brush

METLKOR®

CYLINDER BRUSHES

and **LIFEWOOD®** WOOD BACKED BRUSHES

M. W. JENKINS' SONS, INC.

Serving Industry for 80 Years

131 Pompton Ave. Cedar Grove
Essex County, N. J., CEnter 9-5150

Analyze Materials Handling Before You Buy Equipment

An engineer who has charge of materials-handling equipment in his plant should have a broad knowledge of all types of handling equipment. He should understand its applications and its limitations.

He should learn his company's policies on (1) return on capital investments, (2) labor relations, and (3) safety. This knowledge will assist him in selling his ideas to management men by showing that the cost of selected equipment is justified.

There Are Three Classifications

Materials-handling equipment can be catalogued in one of three classifications: (1) individual items or pieces in process, (2) bulk materials, or (3) packaged materials.

Each material can be further classified by the maximums and minimums of size, weight, and shape.

With bulk materials, there are many characteristics besides size, weight, and shape. Among these characteristics are flow properties, abrasiveness, and tendencies to dust. Contamination of either the material or the atmosphere surrounding the material may be a factor. Other factors are temperature, corrosiveness, and combustibility.

Packaged Goods Handled Easily

As a rule, packaged goods are not too difficult to handle. Whenever possible, you should work toward unit loads or multiple units. The strength and shape of the package will be determining factors when you consider unit loads.

Production flow rates are of great importance when materials are handled in process. The rate of flow from operation to operation, may require accumulating the product, or production from a single source may be divided into several lanes. In bulk handling, the size of the equipment is determined almost entirely by the rate of production and the frequency of movement.

Building Determines Equipment

The size and shape of your building also influence the selection of equipment. If the building is old, you must consider floor loads, ceiling heights, and the location of obstructions such as stairs, elevator shafts, and washrooms.

Existing handling cost should be checked before you buy new equipment. This cost includes direct-labor and overhead cost. If you already have equipment, include in your cost check such items as power, maintenance, and lost production from downtime.

The salvage value of existing equipment is another factor to check. Since the investment in new equipment is generally dependent on the savings or earnings that can be shown, you should be thorough and accurate when you assemble cost data.

Wheeled Trucks Are Common

The mechanical characteristics of the equipment selected has a bearing on its ultimate operation. The most basic type of equipment depends on wheels and manpower for movement. This equipment is used for handling relatively light loads within a limited area. When you select this equipment, consider the condition of the floors, type and size of wheels, and weight of the empty unit.

The condition of the floor and the material it's constructed of affect rolling resistance and footing. Give particular attention to the rolling resistance of several types of wheels on both smooth and rough floors.

Overloading Reduces Efficiency

Three factors combine to make up the total resistance to horizontal movement: floors, wheels, and weight. Tests show that as the resistance to horizontal motion increases, the human energy required to move the load increases at a considerably faster rate. The optimum resistance for maximum utilization of human energy is about 32 lbs. Therefore to get the maximum efficiency with wheeled units, the resistance to rolling the empty unit must be kept to a minimum.

A second group of equipment includes powered machines such as fork trucks and tractors. Many types of trucks are available: gasoline, liquid petroleum, and electric. So before

(Advertisement)

Questions & Answers on...

FLOOR MAINTENANCE

Have floor maintenance costs gone up in the last 6 years?

No. They are 30% to 60% less today than in 1951, according to mills using the Tennant System. New seals last 4 times longer, have a better gloss, are easier to clean. Mechanical buffing (dry cleaning) is needed only about 1/10 as often as before. Modern floor care methods are very economical.

•

How often is sanding necessary?

Sanding is now a one-time job with today's maintenance techniques. A correctly sealed and finished floor, properly cleaned and renewed, should never require resanding.

•

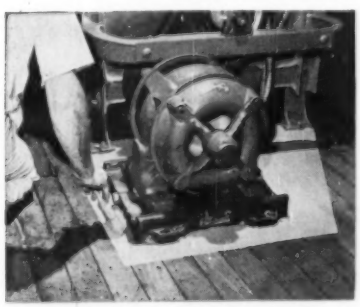
How frequently should our weave room floors need dry cleaning?

Today, rapid dry mop sweeping is sufficient for about 95% of all daily maintenance on correctly sealed floors. As a result you need not dry-clean most weave rooms oftener than at 2-month intervals.

•

How should floor care be scheduled?

Use a master chart showing each department and recommended finishing and maintenance techniques. An attractive 16 x 20 chart, "Guide to Textile Floor Maintenance" is available free from the Tennant company.



Special paint hides dark, oily areas.

What treatment is best for oil-soaked areas under looms, etc.?

Use an attractive masking paint like Tennant No. 201 Oil-Cover Paint. It dries in about 30 minutes, resists oil discoloration, cleans easily. Photo shows typical use around loom motor. Colors: gray, tile red, yellow.

For FREE chart and other data, write G. H. Tennant Co., 737 N. Lilac Drive, Minneapolis 22, Minn.

HARD, DIRT-RESISTANT Tennant-sealed floor needs only fast sweeping for daily care.

COMPARED WITH 5 YEARS AGO...

you now get brighter, cleaner floors at 1/2 the cost

When TENNANT introduced the dry-cleaning method years ago, it slashed previous textile floor maintenance costs to an all-time low.

But today, as a result of *important new improvements,* it does even more. It reduces average annual maintenance costs to about 50% of what they were just 5 years ago. And today's *tennantized* floors—as the photo shows—are far brighter . . . cleaner . . . more dirt-resistant than ever before. Some of them look like ballrooms!

New, Easy-to-Use Techniques Save Manhours

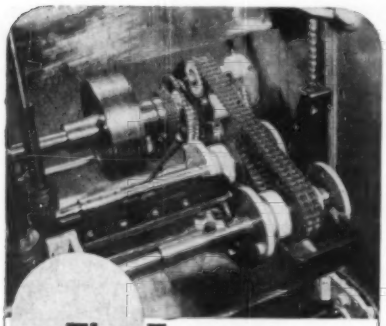
Here's why these new cost-saving results are possible:

1. Tennantized floors now need only 1/5 to 1/10 the former buffing, and about 50% as much labor-per-square-foot . . .
2. Improved Tennant materials last up to 4 times longer, stand up better under oil, moisture, dirt and traffic . . .
3. New techniques save time in problem areas such as humid weave rooms, in twisting, etc. *Ask for free, accurate estimate of savings your mill may expect.*

TENNANT
ESTABLISHED 1870

G. H. TENNANT CO.
737 North Lilac Drive
Minneapolis 11, Minn.

FLOOR MAINTENANCE SYSTEM



The Famous Precision Patented Compound and Chain Drive

floating power for Roving Frames

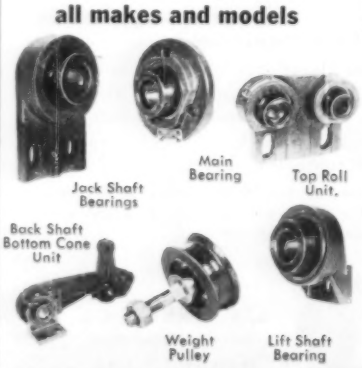
Every gear, sleeve, and bearing rotates in the same direction as the jack shaft. Positive one-way power transmission starts or stops bobbins and spindles simultaneously.

- **Ends Stay Put regardless of starting or stopping speeds**
- **No Lag**
- **No Backlash**
- **No Breakage**
- **No Stretched Places**
- **and No Oil Spots**
  Completely sealed lubrication

- **The Result**

The Precision Compound and Chain Drives produce bobbins of uniform size and weight with equal tension from the first to the last layer of yarn. The Precision Compound will save you many times its cost in producing better roving—and in fewer seconds and better running work in subsequent processes.

- **Roving Bearings for all makes and models**



Precision Gear & Machine Co.
2001 N. Tryon St. • ED 4-6857
Charlotte 1, North Carolina

you buy, analyze your operating requirements and compare them with the operating characteristics of several types of power machines.

Future Needs Must Be Analyzed

Second, analyze your future needs if possible. Consider the possibility of standardization, maintenance facilities, and replacement programs.

Third, compare the operating cost, depreciation, maintenance, and interest on your investment for the various machines.

Handling materials by conveyor is one of the oldest and most commonly used methods of materials handling. There are few limitations with conveyors. Therefore if you have a good working knowledge of conveyors and their accessories, you can solve most handling problems.

For handling packaged goods or individual pieces in process, the most common conveyors are gravity roller, wheel, belt, or live roller.

Conveyors Do More Than Move Loads

Although conveyors are usually thought of only as a way to move materials, they can perform several functions. Work can be done on parts as they move along a conveyor. Conveyors can also be used for charging or discharging some types of machinery. Some of the other jobs that can be done are weighing, counting, accumulating, and segregating.

The conveyor to be used for any particular job depends primarily on the size, shape, and weight of the item to be moved. It is best to submit a problem in handling to several well-qualified manufacturers of equipment. Let them suggest the system complete with loading and unloading devices.

Pneumatic Conveyors Are Efficient

A lot of progress has been made recently on pneumatic conveyance, particularly in handling fluids. With this method, many materials can be conveyed over a short distance with much less power than was normally required with standard pneumatic systems.

Pneumatic systems have the advantage of being able to convey in any direction and to change direction without additional equipment. They also require less space than mechanical systems.

Gravity Is Cheapest Moving Force

There are several other classifications of equipment. But the basic rules in selecting any type of conveyor system are:

1. Gravity is the most economical motive force that can be used.
2. Equipment built for motion should be kept in motion; idle equipment is expensive.
3. Continuous movement of material is more economical than intermittent movement.
4. Handling cost is generally proportional to the size of load handled.

For equipment cost to be justified it must perform one or more of the following functions:

1. Increase production
2. Reduce production cost
3. Conserve human energy
4. Increase safety. *C. H. Wolf, Dow Chemical Co., at the Seventh National Materials-Handling Exposition & Conference.*

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 216

has been marketed by Wallace & Tiernan, Inc., 25 Main St., Belleville 9, N. J. A continuous stream of air is sampled by the instrument, which gives a warning when chlorine is present.

Circle T-33 on Reader-Service Card

Tape Dispenser

Pressure-sensitive tape dispensers operated by compressed air have ben marketed by Air Fixtures, Inc., 202 W. Main St., North Manchester, Ind.

Circle T-34 on Reader-Service Card

Conveyor Belt

A conveyor belt that has criss-cross ribs molded in three stages of depth has been developed by Goodyear Tire & Rubber Co., Akron 16, Ohio. Because of its unusual surface, the conveyor will handle hard or soft packages at angles up to 40°.

Circle T-35 on Reader-Service Card

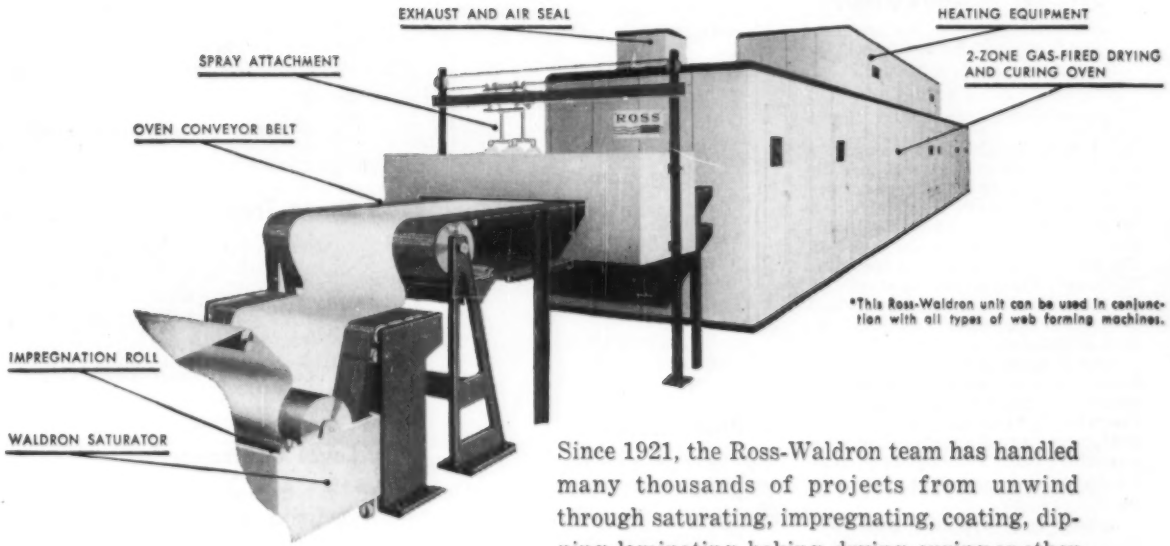
Lubricating Pump

Continuous lubrication of a bearing or a series of bearings is provided by a new piston pump that has only one moving part. Design simplicity

ROSS
Air Systems

Engineered Atmospheres for Better Processing

ROSS-WALDRON RANGE*... *the ideal unit for Impregnating, Drying and Curing NON-WOVEN FABRICS*



*This Ross-Waldron unit can be used in conjunction with all types of web forming machines.

The Ross-Waldron Range as illustrated above consists of a Waldron Saturator; an optional spray attachment for spraying the web; a 2-zone Ross gas-fired drying and curing oven. Note that the web is carried through dipping and curing operations on stainless steel belts to provide better formation of the fabric and to eliminate any tensile strength on the web.

Since 1921, the Ross-Waldron team has handled many thousands of projects from unwind through saturating, impregnating, coating, dipping, laminating, baking, drying, curing or other conditioning to the final rewind of the processed web or sheet. Today, most of the leading producers of non-woven fabrics are users of Ross-Waldron air-processing and converting operations.

In addition to the above mentioned Range, Ross Engineers offer a complete line of roll type curing ovens and multi-pass drying and curing ovens for the non-woven fabrics manufacturer.

Do you have a web conditioning problem?

If so, check up on the Ross Avisco Web Conditioner. At high speeds this conditioner adds the desired moisture to the web uniformly across the entire width. The unit can be used separately or tied into and synchronized with other web processing operations.

In the conversion of non-woven fabrics—saturating, impregnating, coating, dipping, web conditioning—Ross Engineering is associated with John Waldron Corporation, New Brunswick, New Jersey to coordinate the converting equipment with the air-processing operations.

THE ROSS GROUP OF COMPLEMENTING SERVICES

J. O. Ross Engineering Corporation, New York
Andrews and Goodrich Division, Boston
Ross Engineering of Canada Limited, Montreal
Ross Midwest Fulton Corporation, Dayton
Carrier-Ross Engineering Company, Ltd., England
John Waldron Corporation, New Brunswick, N. J.

J. O. ROSS ENGINEERING CORP.

444 Madison Avenue • New York 22, N. Y.
ATLANTA • BOSTON • CHICAGO • DETROIT • LOS ANGELES • SEATTLE

For more data, write this page number on Reader-Service card. →

NOW—CHECK ACCURACY WHILE YOU CHECK MOISTURE!

New Electronic Moisture Registers have first "built-in standard" in a 3-second, portable moisture tester.

NOW DIAL ACCURACY IS ASSURED, even under the extremes of production-line use. With *self-checking standard*, Moisture Register's new Model 5's are checked and adjusted for calibration accuracy right on the job—by any untrained operator. He simply fits electrode to standard. Then with new trimmer he sets dial for perfect alignment. Gives calibration adjustment *in the field*. You get practical accuracy down to 0%... 3-second spot tests for moisture wherever your product may be. Portable, light weight, battery operated, new rugged construction with miniature tube. Factory-set to your needs.

For faster testing of—

- Wool, Cotton, Rayon, Nylon, Dacron, Orlon—practically any textile.
- Yarn: cones, beams, skeins.
- Fabrics: loose or compressed.

SEND FOR NEW TECHNICAL DATA and information on 2-week free trial.

ELECTRONIC MOISTURE REGISTER Instruments

Moisture Register Company, Dept. TW
P. O. Box 910, Alhambra, California
Please send data on new Model 5's.

We are testing _____

in moisture range from _____% to _____%

Firm _____

By _____ Title _____

Address _____

City _____ State _____

makes the pump easy to install and maintain. It is made by Bijur Lubricating Corp., 151 W. Passaic St., Rochelle Park, N. J.

Circle T-36 on Reader-Service Card

Fork Lift Truck

The Colson Corp., Elyria, Ohio, announces a fork lift truck designed for quick stacking of loads up to 1,000 lbs. in narrow storage aisles.

Circle T-37 on Reader-Service Card

Water Demineralizer

A two-column demineralizing unit made by Penfield Mfg. Co., 19 High School Ave., Meriden, Conn., will produce up to 2,500 gals. per hr. of water with less than 2 ppm. impurities.

Circle T-38 on Reader-Service Card

Loading Conveyor

The Wilkie Telescopic conveyor and a mobile dock to ease loading problems where no dock exists is made by Wilkie Co., 5520 Arch St., Philadelphia 39, Pa.

Circle T-39 on Reader-Service Card

Pilot Valves

A complete line of small solenoid pilot valves capable of handling air, vacuum, oil, water, and inert gases is announced by Valvair Corp., 454 Morgan Ave., Akron 11, Ohio.

Circle T-40 on Reader-Service Card

Hand Tools

A ½-in. square-drive-socket tool set is announced by Snap-on Tools Corp., 8028 28th Ave., Kenosha, Wis. The tools are thin walled for work in close places.

Circle T-41 on Reader-Service Card

Microammeter

Keithley Instruments, Inc., 12,415 Euclid Ave., Cleveland 6, Ohio, announces its Model 410 microammeter for measuring low currents in photocells, vacuum-tube grids, semiconductors, and ion chambers.

Circle T-42 on Reader-Service Card

Parts Cleaner

An ultrasonic cleaner for small parts that washes them surgically clean is available from Branson Ultrasonic Corp., 37 Brown House Rd., Stamford, Conn.

Circle T-43 on Reader-Service Card

Adhesive Mends Metals

An adhesive for bonding steel, iron, bronze, aluminum, and lead to themselves has been developed by Devlon Corp., Danvers, Mass.

Circle T-44 on Reader-Service Card

High Lift Truck

The Truck-Man Div., Knickerbocker Co., Jackson, Mich., announces addition of a versatile 1,500-lb. model to its line of high lift trucks.

Circle T-45 on Reader-Service Card

Steam Trap

Strong Steam Specialties Div., Strong, Carlisle, & Hammond, Cleveland 13, Ohio, announces its 140-S Hydro-Flex steam trap with built-in stainless strainer.

Crcle T-46 on Reader-Service Card

Level Controller

A displacement-type liquid-level controller announced by Kieley & Mueller, Inc., Middletown, N. Y., has eliminated bearings and knife edges to provide trouble-free control.

Circle T-47 on Reader-Service Card

Pilot Positioner

A fast-acting pilot positioner that provides extreme accuracy of control has been developed by Johnson Service Co., Milwaukee 1, Wis.

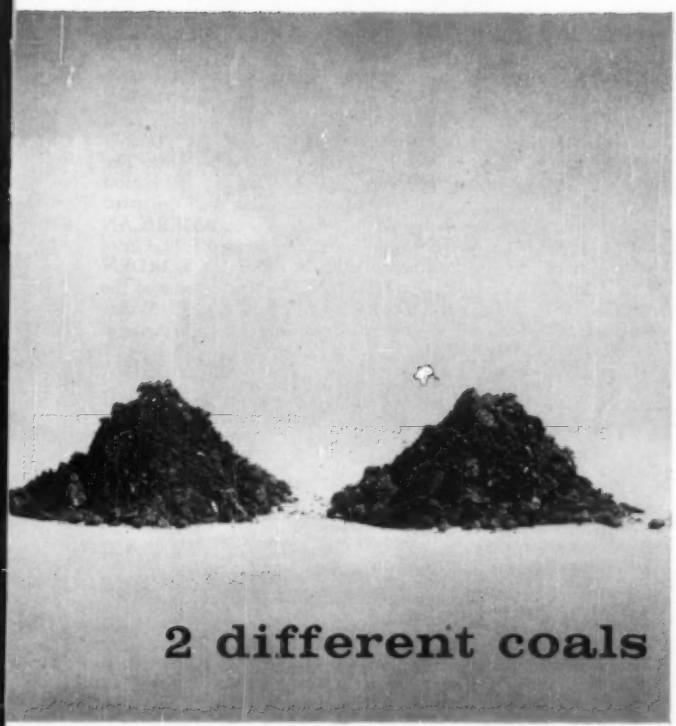
Circle T-48 on Reader-Service Card

Timer Component

Industrial Timer Instruments Co., 189 West Madison St., Chicago 2, Ill., has designed an electrical instrument timing component that keeps running when power fails or circuits short out.

Circle T-49 on Reader-Service Card

IT'S NEW! Coal-custom blended to your exact requirements



2 different coals

become 1

World's Finest Coal Blending Plant Makes this Possible

Now, rather than get coal of the approximate quality you require, you can get coal of exact specifications.

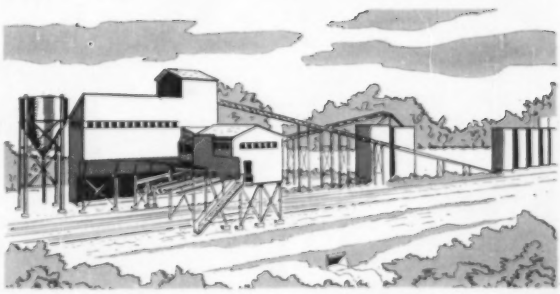
Garland Coal Company's new custom blending plant in Virginia makes this possible for you. The plant is located on the Norfolk and Western Railroad and has 6 loading tracks. The coal can be loaded in any size required and 6 grades may be prepared simultaneously.

Different coals are stored in individual hoppers. A large conveyor belt passes beneath. The engineer then releases varying amounts of coal from each hopper to custom blend a mixture of coals. You get exactly the high, medium or low volatile coal you want with the exact ash, sulphur, coke index, grindability and BTU content.

Contact Garland Coal Company today and find out how Garland's new custom Blending Plant can give you more efficiency from coal, thus saving you money.

Garland Coal Co.

KNOXVILLE, TENN.
COLUMBUS, OHIO — CHARLOTTE, N. C.



Coal is a Better Buy Than Ever. Coal actually costs 1.2% less than it did in 1948 while the price of competitive fuels has risen substantially. Enormous reserves of coal in this country insure a constant supply of relatively low cost fuel. Coal is still your best buy.

Garland Coal Co., 917 Hamilton Bank Bldg., Knoxville, Tenn.

I would like more information on Custom Blending of Coal.

Name_____

Address_____

Company_____ Position_____

UTICA Combination Winding and Cutting Machine

To meet your special requirements, ask for information on Heavy Duty Model — also Utica Individual Roll Winders and Strip Cutters.

1 machine does the work of 2

THIS fast-producer has all the advantages of two machines, but uses the floor space of just one. Cuts light, medium, or heavy weight, both straight and bias fabrics. Cutter and Winder can be run at the same time. Rigidly constructed for long, trouble-free operation. Has measuring scale for cutting accurate rolls. It's safe—knife, grinding wheel, all gears and sprockets are well-guarded. Equipped with Veeder Root yardage counter. Made in 40, 45, and 55 inch width machines. Make your own bindings —as you need them—from the same material as your product—at lower cost. Write today.

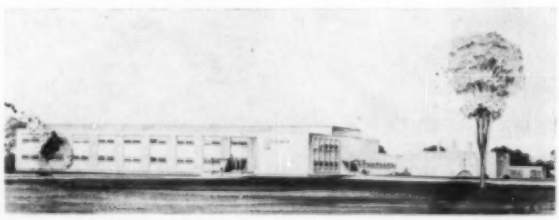
UTICA

NOVELTY AND MILL SPECIALTY CO.
2145 DWYER AVE., UTICA 2, NEW YORK
Builders of Textile Machines Since 1903

Since 1898
Dary Ring Travelers...
DARY
THE DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS
LINDSEY I. PHILLIPS, Treasurer, Taunton, Mass.
Consult your friendly Dary Representative:
JOHN H. O'NEILL Box 720, Atlanta, Ga.
JAMES H. CARVER Box 22, Rutherfordton, N. C.
CRAWFORD "JACK" RHYMER Box 2261, Greenville, S. C.

NEWS ABOUT SUPPLIERS

ALLIED CHEMICAL & DYE CORP., NATIONAL ANILINE DIV., New York, N. Y.—Has announced the reassignment of R. E. Mulcahy from Caprolan polyamide-fiber sales to the product-development staff. The company has also announced the following retirements of dyestuff salesmen: R. F. Holoch, New York; F. J. Acker, Chicago; F. W. Gainey, New England area. . . . **AMERICAN CYANAMID CO.**, New York, N. Y.—Has named H. Puckett director of sales and R. W. Daniels assistant director of sales for the Organic Chemicals Div. The company is showing Creslan for the first time in its exhibit center in Rockefeller Center. The company has also dedicated its new research center at Bound Brook, N. J. . . . **AMERICAN VISCOSE CORP.**, Philadelphia, Pa.—Has appointed J. N. Gregg sales representative in the Charlotte, N. C., office. . . . **BORDEN CO., CHEMICAL DIV.**, New York, N. Y.—Has announced the transfer of M. S. Letourneau to Greenville, S. C. M. C. Wakefield has joined the division as Midwest district sales manager of the Polyco-Monomer Dept.



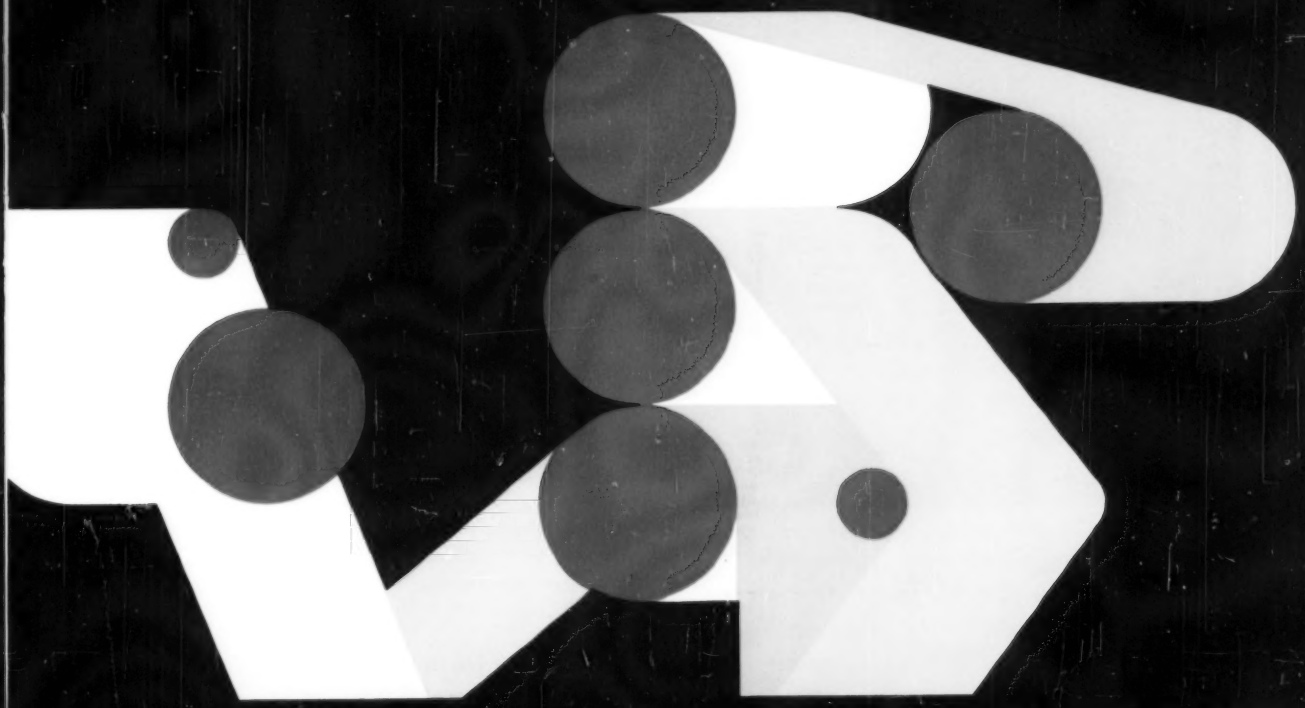
HOOKER ELECTROCHEMICAL CO., Niagara Falls, N. Y., has started construction of a research center on Grand Island, N. Y. The initial facilities, shown above in an artist's sketch, will be completed by late 1958 or early 1959. Costing about $3,500,000, the new research center will provide space for about 200 employees.

CARPENTER STEEL CO., Union, N. J.—Has appointed J. A. Koerner territory sales manager of the metropolitan New York City area. . . . **CARRIER CORP., MACHINERY & SYSTEMS DIV.**, Syracuse, N. Y.—Has named E. C. Hungate industrial-air-conditioning product specialist. . . . **CELANESE CORP. OF AMERICA**, New York, N. Y.—Has appointed L. F. Laun general merchandising manager of the Textile Div. The company has begun operation of a new Polyolefin Pilot Research Laboratory, Summit, N. J. . . . **CHEMSTRAND CORP.**, Decatur, Ala.—Has appointed R. E. Freeman, E. K. McIntosh, and H. L. Middleton technical sales service representatives based in Pensacola, Fla. L. M. O'Guin, Jr., has joined the company as a senior representative in the Technical Sales Service Dept. J. M. Faria has joined the company as a senior technical sales service representative and will work out of the Decatur office. Cole Downing has been appointed technical manager for the Acrilan plant, Coleraine, Northern Ireland.

CIBA CO., INC., New York, N. Y.—Has named P. Luck as special assistant to the general sales manager. The company has also announced that it is breaking ground for a new epoxy-resin plant and development laboratories at Toms River, N. J. . . . **CLINTON CORN PROCESSING CO.**, Clinton, Ia.—Has promoted R. H. Jackson to general sales manager of the Eastern division. . . . **CROWN CHEMICAL CORP.**, Providence, R. I. —Has appointed Fred C. Grant to the position of vice president and director of sales. . . . **DOW CHEMICAL CO.**, New York, N. Y.—Has opened a New York sales office for the textile-fibers department. H. E. New will head up textile yarn and fabric development.

EASTMAN CHEMICAL PRODUCTS, INC., SUBSIDIARY OF EASTMAN KODAK CO., Kingsport, Tenn.—Has announced the appointment of Miss E. Armstrong to head its Fiber Publicity Dept. . . . **EMERY INDUSTRIES, INC.**, Cincinnati, Ohio—Has promoted D. R. Eagleson to assistant sales manager

CIBA



Fast-Dyed Unions on Blends—

Microfix® Dyeing

Like all better fabrics — popular multifiber blends, such as combinations of cotton or wool with polyester fibers, call for level shades of top color fastness. MICROFIX pigment-padding dyes give excellent unions on blends and level shades in pale and medium depths on single-fiber goods. Fastness to light, washing, crocking and dry cleaning is especially good. They are applied in conjunction with the resin finishes, MICROFIX BINDERS I, II and III, in a one-bath padding procedure followed by drying and curing.

Upgrade your hard-to-dye blends and regular textiles with fast, economical pigment dyeings at their best!

CIBA Company Inc., 627 Greenwich St., New York

Automatic Winders for Rewound Filling

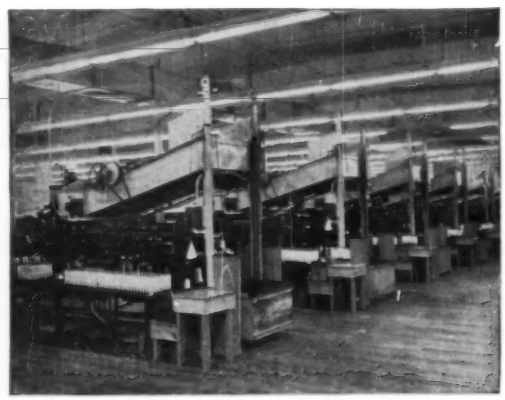
to take advantage of large package spinning, more yarn on filling bobbins, more uniform bunches, better weaving bobbins, and inspected yarn, all of which go to make a better fabric.

Abbott Traveling Spindle Package Winders

Automatic Cone or Tube Winders for warping, dyeing, twisting, quilling, sales.

Can be equipped with any one of a variety of slub catchers and inspection devices.

Production up to 1000 bobbins per hour per operator.



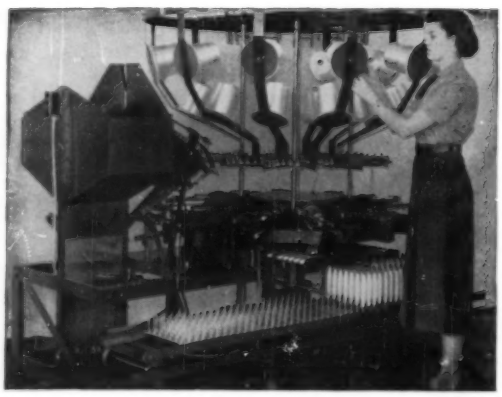
Abbott Traveling Spindle Automatic Quillers

For winding coarse cotton, worsted, woolen yarns, etc., equipped to doff automatically into baskets, or stack automatically into boxes.

Abbott Model II High Speed Automatic Quillers Over 10,000 RPM

For winding fine cotton, spun synthetics, filament rayon and nylon, etc. with automatic pinboard attachment or wide belt inspection conveyor, or bobbin stacker.

Production up to 2500 bobbins per hour per operator.



Abbott Fully Automatic Radial Quiller

For smaller lots and widely diversified mills.

For winding cotton, spun rayon, filament rayon, worsted, wool, etc.

Can be arranged to deliver bobbins to Pinboard Attachment, or into baskets, or into wide belt conveyor.

One operator can run several machines producing up to 2000 bobbins per hour per operator.

Can be equipped with measured yardage device for two-shuttle looms.

ABBOTT MACHINE CO., INC.

WILTON, NEW HAMPSHIRE

SOUTHERN SALES AND SERVICE: GREENVILLE, S. C.

of the fatty-acid sales department. P. N. Leech has been named to succeed Mr. Eagleson as sales representative in the Chicago area. J. Z. Sack has been appointed to the St. Louis sales territory. . . . **GASTON COUNTY DYEING MACHINE CO.**, Stanley, N. C.—Has appointed A. P. March sales engineer for the Northeastern U. S. A. W. J. Newcomb has been appointed to head the cloth-dyeing machinery division as sales engineer. . . . **GENERAL ANILINE & FILM CORP.**, New York, N. Y.—Has named H. A. Webb assistant sales manager for dyestuffs and pigments. A. K. May has joined Antara Chemicals, sales division of the company, as manager of ethylene chemical sales.

GENERAL ELECTRIC, SILICONE PRODUCTS DEPT., Waterford, N. Y.—Has appointed J. T. Castles sales manager. . . . **GOODYEAR TIRE & RUBBER CO., CHEMICAL DIV.**, Akron, Ohio—Has appointed J. L. Jenkins special field representative, with headquarters in Cleveland. R. S. Walker has been named sales engineer for Chemigum rubber. The company has announced the formation of a new-products department. . . . **HOOKER ELECTROCHEMICAL CO.**, Niagara Falls, N. Y. —Has opened a new $12-million chlorine-caustic plant in North Vancouver, B. C. . . . **JAMES HUNTER, INC.**, Greenville, S. C.—Has purchased the Frank F. Fuller Co. . . . **INDUSTRIAL RAYON CORP.**, Cleveland, Ohio—Has elected F. L. Bissinger to group vice president, marketing and research. . . . **INTERNATIONAL NICKEL CO., INC.**, New York, N. Y.—Has promoted R. E. Savage to be in charge of the distributor-sales section.

JEFFERSON CHEMICAL CO., INC., New York, N. Y.—Has announced that J. R. Carlson has been appointed to the newly created position of sales manager. P. R. Monagham has been appointed regional manager of the Eastern region. . . . **LAMSON MOBILIFT CORP.**, Portland, Ore.—Has moved its service-department headquarters from Chicago, Ill., to the factory in Portland. . . . **MIDLAND STEEL PRODUCTS CO.**, Cleveland, Ohio—Has merged with J. O. Ross Engineering Corp., New York, N. Y. . . . **MINNEAPOLIS-HONEYWELL REGULATOR CO., INDUSTRIAL DIV.**, New York, N. Y.—Is realigning its sales activities to keep pace with expansion of its systems-engineering group. Two new sales divisions, Eastern and Western, have been established with J. T. Teed in charge of the former in Philadelphia, Pa., and T. W. Tracy in charge of the latter in Los Angeles, Calif.

MORNINGSTAR, NICOL, INC., New York, N. Y.—Has announced the affiliation of its company with Federal Adhesives

J. A. NEUBAUER (left) has been elected president of Columbia-Southern Chemical Corp., Pittsburgh, Pa. O. W. B'HYMER (center) has been promoted to the newly created position of customer service manager for the fatty-acid sales department of Emery Industries, Inc., Cincinnati, Ohio. DR. WILBUR G. MALCOLM (right) has been elected president of American Cyanamid Co., New York, N. Y.

New Center Bar Winder

NOW M&W OFFERS A CHOICE OF 2 BATCHERS

Now you can install a center bar winder for any width cloth at considerable savings — because you don't pay for features you may not need. Our new winder offers substantial savings in initial cost and installation and is internally wired so that only leads are needed for connection to the power line. It retains the same construction advantages as Standard and Heavy Duty Batchers which are fully equipped with expander and traveling carriage.

M&W Tensionless Batchers and Winders are rugged, give increased rigidity for superior performance at high speeds . . . have all working parts totally enclosed . . . automatically wind at any desired tension or practically no tension at all, controlled by adjusting knob. Both are available for either light or heavy duty.

Write for complete data on the M&W Tensionless Batcher and Winder that will do your job best

Standard Batcher with expander and traveling carriage

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ASSEMBLY PLATE — Holds internal parts in position when head is removed.
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SYPHON ELBOW — Permits use of straight pipe for syphon. Can be inserted or withdrawn right through the joint.

WRITE FOR FACTS

on this Series 3000 Johnson Joint and the syphon elbow. Remember Johnson Joints have written an unmatched service record . . . are first choice among mill men and machinery makers alike . . . and can fit all operating needs.

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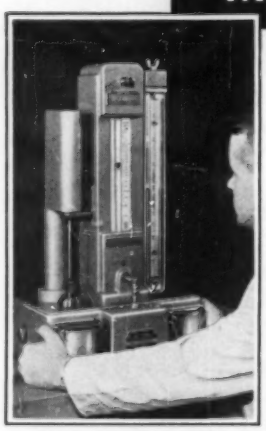

- Speeds up checking two to three times.
- Provides a quick, easy, accurate and authorative measure of fiber fineness.
- Indicates the quality and value of the cotton.
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- Measures the maturity of cotton.
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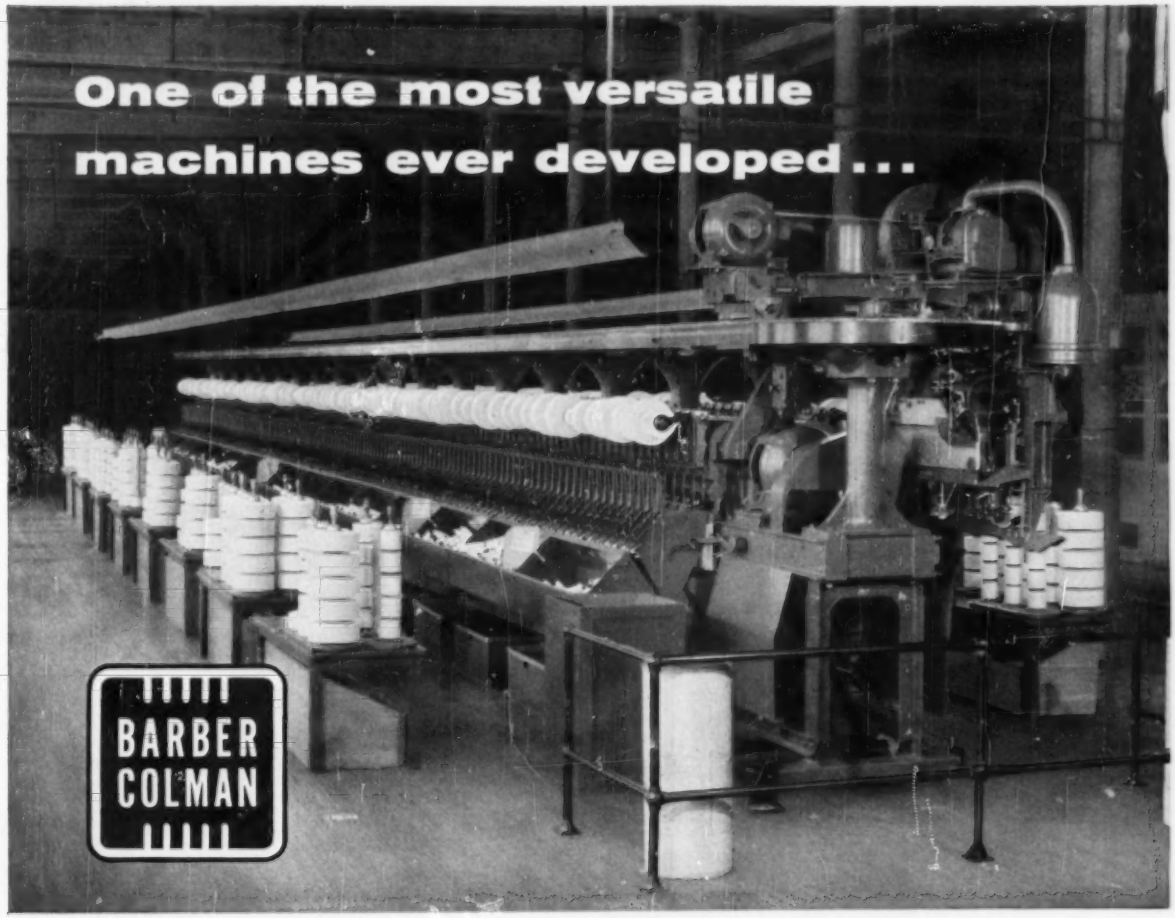
Corp., New York, N. Y. The new Federal acquisition includes Adex Mfg. Co., Baltimore, Md. The affiliation also includes Federal Latex Corp., manufacturer of rubber latex compounds, and Federal Chemicals Corp., manufacturer of industrial chemicals and vinyl plastisols. . . . **OAKITE PRODUCTS, INC.**, New York, N. Y.—Has announced the transfer of V. M. Coulson from Evansville, Ind., to Fort Worth, Tex. T. A. Reilly, Jr., has been assigned to Trenton, N. J. . . . **ROBERTS CO.**, Sanford, N. C.—Has announced that I. S. Bull has joined the company as research engineer.

JOSEPH T. RYERSON & SON, INC., Charlotte, N. C.—Has announced the opening of a new steel service plant. Construction of the plant was begun early in 1957 and replaces the former leased quarters in Charlotte. It has adequate floor space for stocking a comprehensive range of qualities of carbon, alloy, and stainless steel. Air-conditioned offices are in a two-story brick building that forms an integral part of the plant. . . . **C. G. SARGENT'S SONS CORP.**, Graniteville, Mass.—Has bought the property formerly occupied by Abbot Worsted Mills. The purchase includes the mill and a separate office building. The company will occupy a substantial part of the space immediately for needed expansion of its fabrication department. . . . **SHAWINIGAN RESINS CORP.**, Springfield, Mass.—Has announced that its new facilities for the production of Gelvatol, polyvinyl alcohol, are in production. The plant is now producing a full line of 12 different grades.

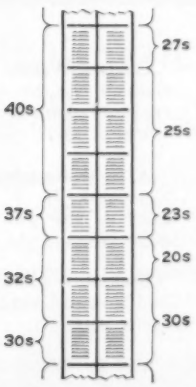
METRO-ATLANTIC, INC., New York, N. Y., has completed construction of this new manufacturing plant in Greenville, S. C. The new plant will enable many products to be manufactured in the South that had formerly been manufactured at the Rhode Island plant.

SQUARE D CO., Detroit, Mich.—Has announced the completion of an electrical-equipment assembly plant in Atlanta, Ga. . . . **STOWE-WOODARD, INC.**, Newton Upper Falls, Mass.—Has announced the appointment of W. J. Smith as assistant treasurer and controller of the company. . . . **SUN CHEMICAL CORP.**, Long Island City, N. Y.—Has announced that it has signed a contract to buy Ansbacher-Siegle Corp., Staten Island, N. Y. The purchase price is 225,000 shares of common stock of Sun Chemical Corp.

TAYLOR FIBRE CO., Norristown, Pa.—Has elected R. R. Hydeman vice president in charge of manufacturing. He succeeds H. C. Steadman, who has resigned. . . . **UNITED STATES RUBBER CO.**, New York, N. Y.—Has elected J. M. McGovern president. He succeeds H. E. Humphreys, who continues as chairman of the board. The board also designated E. A. Luxenberger and G. R. Vila group vice presidents. . . . **UNITED STATES STEEL CORP.**, Pittsburgh, Pa.—Has appointed R. L. Swank manager of sales, Plastic Pipe Dept., National Tube Div. T. D. Cramer has been appointed assistant manager of this department. . . . **WERNER TEXTILE CONSULTANTS**, New York, N. Y.—Has appointed C. W. Bendigo to the executive staff as coordinator of textile-market-research assignments. . . . **WESTON ELECTRICAL INSTRUMENT CORP.**, Newark, N. J.—Has opened a Boston, Mass., district sales office at 66 Central St., Wellesley, Mass. E. P. Reid, formerly of the New York district office staff, is manager. . . . **YALE & TOWNE MFG. CO., YALE MATERIALS HANDLING DIV.**, Philadelphia, Pa.—Has promoted F. S. Miller to manager of Worksaver and Warehouser sales.



MULTIPLE-COUNT SPOOLER



Sale yarn mills and producers of piece goods that use various counts of different mixtures will find that this machine can be a very profitable investment. It is the famous and familiar Barber-Colman Automatic Spooler, but now you can wind . . .

A DIFFERENT COUNT EVERY 9 UNITS

The machine is built in "bays" between posts that support the traveler track, with nine bobbin-to-cheese winding units in each side of each bay. Empty bobbins, instead of being conveyed to a single sorting table, drop into separate boxes under each bay, thus enabling each group of nine units to be loaded and run with a different yarn. Starter boxes and cheese tables are set up individually for each bay. The only limitation is that the extremes of different counts on the machine at any one time must fall within the range of the knotter in the traveler. Changes can, of course, be readily made at any time, and any number of bays can be run on identical yarns. (Note the dividers between the bobbin trays on the machine shown above.) *Full details on the many adaptations of this versatile machine can be obtained from your Barber-Colman representative.*

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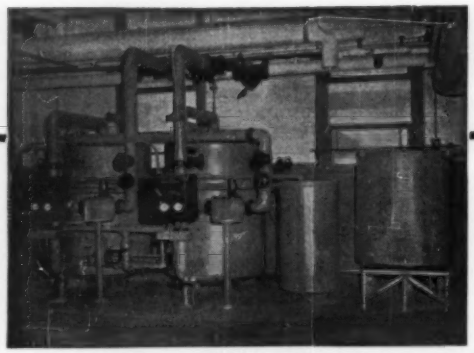

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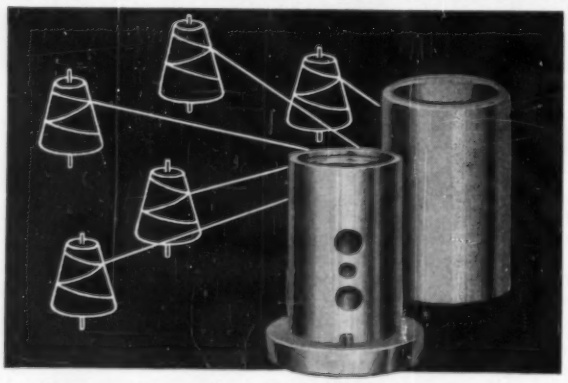

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JOHNSON Bearings

Johnson Textile Bearings

COTTON MILLS

Cosmos Imperial Mills Ltd., Yarmouth, N. S., has removed 11 spinning frames from its spinning department and has shipped them to the Southern section of the United States. The 44 frames that remain are to be lined up in new positions prior to a complete modernization of the plant. The carding department has received a truck load of 60 card coilers.

Neisler Enterprises, Inc., Shelby, N. C., is a new novelty-fabric plant that has 30 looms on the floor at the present time. Machinery is still in the process of being installed. The company is now making fabric samples.

Pepperell Mfg. Co.'s Fall River, Mass., plants have been purchased by Fairhope Fabrics, Inc., Fall River. The now idle Pepperell operations, formerly the Granite Mills, comprise 387,000 sq. ft. of floor space in two buildings.

Pacolet Yarn, Inc., Pacolet Mills, S. C., is a new yarn-spinning company that has bought 22,000 spindles and necessary carding and winding equipment from Pacolet Mfg. Co.'s Mill No. 3. All employees of Pacolet Yarn, Inc., will be hired from the present yarn-preparation employees of Pacolet Mill No. 3.

Springs Cotton Mills, Fort Mill, S. C., is adding a 120x50-ft., one-story annex to its weave room in one of its Fort Mill plants.

WOOLEN AND WORSTED MILLS

Forstmann Woolen Co., Garfield, N. J., will discontinue its spinning and weaving operations. It will, however, continue to operate its wool-cloth dyeing and finishing plant in Passaic, N. J.

French River Mills, Webster, Mass., has been formed to manufacture fancy and novelty woolens, worsteds and blends.

Guilford Woolen Mills Co., Guilford, Me., has installed six new wool spinning frames with a total of 1,008 spindles.

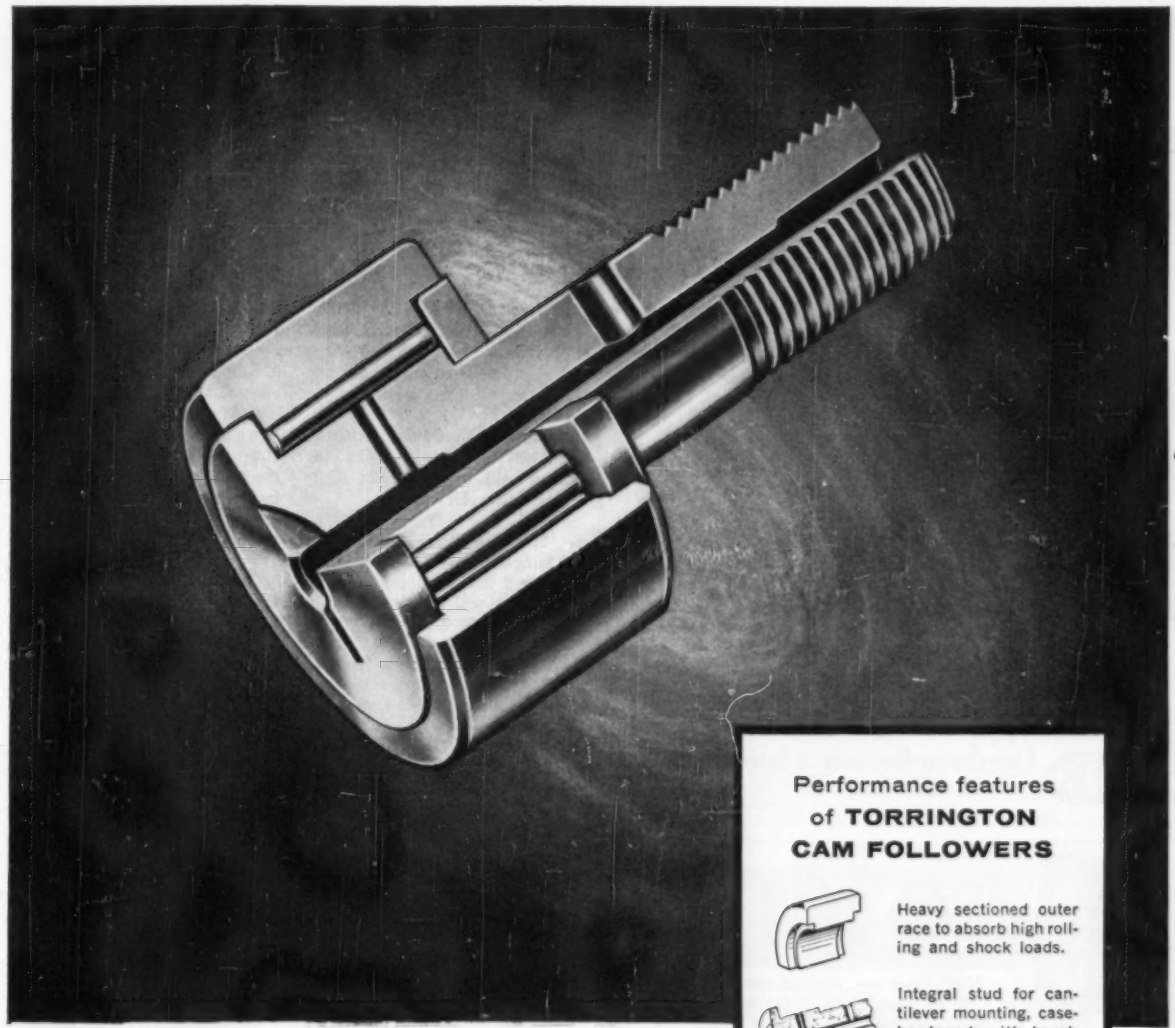
A. & M. Karagheusian, Inc., New York, N. Y., has dedicated its new plant in Aberdeen, N. C.

Stafford Worsted Co., Stafford Springs, Conn., has ceased operations.

KNITTING MILLS

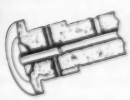
Beaunit of P. R., Inc., Humacao, P. R., is planning a 50% expansion at its tricot-manufacturing plant in Humacao.

Bergman Knitting Mills, Philadelphia, Pa., has taken an additional 10,000 sq. ft. at its present location in line with a general expansion plan.



Performance features of TORRINGTON CAM FOLLOWERS

Heavy sectioned outer race to absorb high rolling and shock loads.



Integral stud for cantilever mounting, case-hardened, with tough core for high strength to withstand shock loads.

Easily relubricated at either end or through cross hole in stud. Ends accommodate standard drive grease fittings or plug seals.

Full complement of small diameter rollers for maximum radial capacity and efficient anti-friction performance.

Races precision ground for even load distribution and uniform low end play.

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Every feature of the Torrington Cam Follower is designed to insure efficient performance and long service life under heavy rolling and shock loads in cam or track follower service.

Precision made throughout, Torrington Cam Followers are available in sizes from ½" to 2¼" OD. Special surface finishes such as chrome and cadmium plate or oxide black can be provided.

Our engineering staff will be glad to work with you in applying these reliable units to your cam-controlled or track-type equipment. You can depend on Torrington Cam Followers to "follow through" on the job because every element is designed for ultimate capacity. *The Torrington Company,* Torrington, Conn.—and South Bend 21, Ind.

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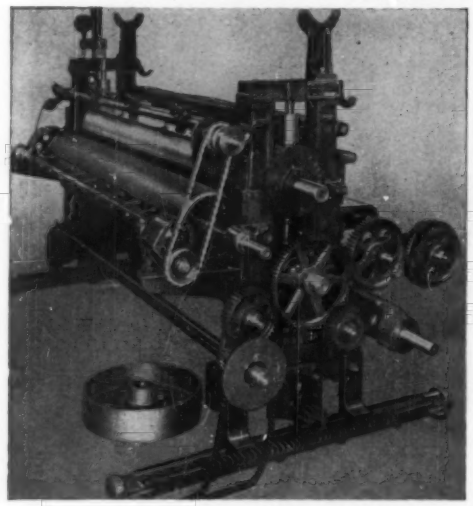

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NEWS ABOUT MILLS Continued

Circular Knit Finishing Corp., Bessemer City, N. C., has been incorporated with authorized capital stock of 1,000 shares of no par value.

Fayetteville Knitting Mills, a subsidiary of Chester H. Roth & Co., Inc., Fayetteville, N. C., has been placed on the market.

Howard Knit Products, Inc., South Gastonia, N. C., has been sold to Cinderella Knitting Mills, Denver, Pa.

Irving Knitting Mills, Inc., Lexington, N. C., will operate under a new corporation. The company will continue to produce infants' hosiery.

Julius Kayser Co., New York, N. Y., has sold Diamond Hosiery Corp., High Point, N. C., to Danita Hosiery Mfg. Co., Philadelphia, Pa. Diamond Hosiery Corp. produces full-fashioned hosiery with the Fruit of the Loom label.

Sale Knitting Co., Martinsville, Va., has purchased the old Martinsville Cotton Mill property from Loom-Tex Corp., New York, N. Y. The company plans to use the new facilities for storage and warehousing until a decision is reached on an expansion plan.

Wilma Hosiery Mill, Spruce Pine, N. C., has installed 25 more machines.

DYEING AND FINISHING PLANTS

Carolina Yarn Processors, Inc., Tryon, N. C., is a new firm that is occupying the plant formerly owned by Southern Mercerizing Co., Tryon, N. C. The company will engage in dyeing, bleaching, and glazing.

Gsell Textile Printing Corp., New York, N. Y., has moved its equipment to a new $300,000 plant in East Newark, N. J. The company will be known as Gsell Textile Printing & Finishing Corp.

Textile World

NEWS ABOUT MEN

Dickson Adams has been been elected a director of Thomaston Mills, Thomaston, Ga.

Charles B. Anderson has been elected president of Roxbury Carpet Co., Saxonville, Mass.

Edwin Z. Backman will become manager of the Freehold division of A. & M. Karagheusian, Inc., Freehold, N. J., on Jan. 1.

James F. Best has been promoted to manager of the industrial engineering department of Pacific Mills, Raeford, N. C.

J. H. Burgess has resigned

as overseer of weaving at Gaffney Mfg. Co., Gaffney, S. C., to accept a similar position with Alma Mills, a unit of Hamrick Mills, Gaffney, S. C.

Bernard L. Coleman has become superintendent of Pacific Mills' Rhodhiss Div., Rhodhiss, N. C.

Robert J. Divan, who has been elected vice president of Worumbo Mfg. Co., Lisbon Falls, Me., will succeed Oliver Moses, 3rd, company president, in active management of operations.

George B. Fenton, The Duplan Corp., New York, N. Y., has been elected chairman of the Throwsters Group of the National Federation of Textiles, Inc.

Frank J. Fitzgerald has been appointed plant manager of the Celriver plant, Celanese Corp. of America, Rock Hill, S. C. He had been director of quality control of the company's textile division in Charlotte for two years.

Victor F. Kahn has been elected a vice president of Pacific Mills, New York, N. Y.

Edward J. Kean has been named production manager of Keezer Mfg. Co., Pliastow, N. H.

M. E. Lance, Jr., has been named manager of the technical services department of The Duplan Corp., Winston-Salem, N. C.

John Learned has joined Putnam Finishing Co., North Bergen, N. J.

John B. Moran has been named overseer of dyeing at Carleton Woolen Mills, Winthrop, Me.

A. Ward Peacock has been elected assistant secretary of Erwin Mills, Inc., Durham, N. C. He formerly had been executive assistant.

Thomas Platt has been named head of the sateen division of Harodite Finishing Co., North Dighton, Mass.

JAMES H. BOTZ, JR., (top left) has been named president of Spinco Fabrics, Inc., a newly formed subsidiary of Cone Mills, Inc., New York, N. Y. IRVING SHAPIRO (top right) has been named vice president and treasurer. JOHN E. FIELD (bottom left) has also been appointed a vice president. EUGENE J. MILORD (bottom right) has been named vice president and secretary of the company.

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NEWS ABOUT MEN Continued

Tony Quinn has been named superintendent of the Vance Plant, Kernersville, N. C.

Warren E. Rixon, Union Carbide Corp., Carbide & Carbon Chemicals Co., has been elected president of the Piedmont Section, American Association of Textile Chemists & Colorists.

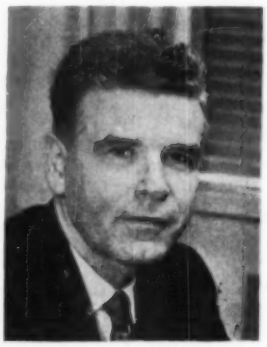
John M. Roddy has been promoted to plant manager at the Thompsonville plant of Bigelow-Sanford Carpet Co., Thompsonville, Conn.

Earl Rushon has been elected vice president of Indian Head Mills, New York, N. Y.

W. Max Shirley has been named overseer of weaving at Gaffney Mfg. Co., Gaffney, S. C. He succeeds J. H. Burgess.

William H. Spencer, Jr., has resigned as manager of the Cascade Div. of Burlington Industries, Inc., Mooresville, N. C.

Arthur Whittaker has resigned as vice president of Pacific Mills, New York, N. Y.



DAVID TAYLOR has been appointed manager of manufacturing, Textile Div., Celanese Corp. of America, Charlotte, N. C. He formerly had been manager of manufacturing development.

C. S. Willard has resigned as superintendent of Pacific Mills' Rhodhiss Div., Rhodhiss, N. C.

Charles A. Young has been appointed director of manufacturing with responsibility for supervising all the carpet- and yarn-making operations at Bigelow-Sanford Carpet Co., Thompsonville, Conn.

Textile World

OBITUARY

Franklin Webster Dorman, 52, president of Dorman Mills, Parsons, W. Va.

Louis Hamburger, 89, retired vice president of Bachmann Uxbridge Div., Amerace Corp., Uxbridge, Mass.

G. Harry Hill, New England sales manager of Steel Heddle Mfg. Co., Philadelphia, Pa.

Waldemar R. Kuenzel, vice president of Deering, Milliken & Co., New York, N. Y.

Jack Levine, 58, president of Denley Knitting Mills, Brooklyn, N. Y.

Dr. Paul Dyer Merica, 68, retired president of The International Nickel Co. of Canada Ltd., Toronto, Ont.

Harold Beers Naramore, 69, chairman of Bridgeport Fabrics, Inc., Bridgeport, Conn.

William Vanderber, 60, retired owner of Plainfield Knitting Mills, Plainfield, N. J.

Nicholas F. Walsh, founder and president of Walsh Knitting Co., Cohoes, N. Y.

Samuel W. Wright, 82, owner of Lamb Knitting Machine Corp., Chicopee, Mass.

J. Hillman Zahn, 64, retired manager of the Southern office of H. W. Butterworth & Sons Co., Charlotte, S. C.

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1—64" Progressive Tuber, late type
1—78" Hunter 15 ton Pneumatic Padder, 2 rubber rolls
1—Brand New 66" Pneumatic Padder, 2 rubber rolls
1—64" Progressive Inspection Machine, with reverse, heavy duty
1—Open Washer, 3 stainless compartments, 68" wide, 3 sets of Squeezers, 12" Dia. S.S. & rubber squeeze rolls
4—70" P. W. Tubing & Meas. Mach.
1—66" Pad Dyeing Machine, 2 rubber rolls 12" Dia. with Foxwell Guiders
1—60" Pneumatic Padder, 2 rubber rolls
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HOW TO USE. First, look in the table below and find the letter that designates the class or supply or service in which you are currently interested. Then consult in the index the page numbers that are to the left of that letter.

A. Air Conditioning, Air Cleaning.
B. Building Construction and Maintenance, Paints, Yard Equipment, Water Supply.
C. Chemicals and Dyestuffs.
D. Cleaning Equipment.
E. Dyeing, Finishing, and Cloth Room Equipment and Supplies.
F. Electrical Equipment—Motors, Controls, Lighting, Etc.
G. Fibers, Yarns, Mills, Finishing Companies.
H. Fluid Handling—Compressors, Pumps, Piping, Valves, Fittings.
K. Instruments, Measuring, Metering and Weighing Apparatus.
L. Knitting-Mill Equipment and Supplies.
M. Lubricants and Lubrication Equipment.
N. Management Services—Factors, Consulting Engineers, Insurance, Personnel Facilities, Plant Sites, Etc.
O. Materials and Components for Machinery and Equipment.
P. Materials Handling, Packaging, and Shipping Facilities.
Q. Power Generation and Transmission (see also Electrical Equipment).
R. Weaving and Warp Preparation Equipment and Supplies.
T. Yarn-Production, Twisting and Winding Equipment and Supplies.

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Abbott Machine Co.	226	T
Acme Steel Co.	70-71	P
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Allis Co., Louis	199	F
Allis-Chalmers Mfg. Co.	157	F, Q
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American Moistening Co.	14	A
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Antara Chemical Div. General Aniline & Film Corp.	29	C
Appleton Machine Co.	62	E
Armco Steel Corp.	203	O
Armstrong Cork Co.	58-59	T
Arnold, Hoffman & Co., Inc.	13	C
Atkinson, Haserick & Co., Inc.	146	T
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Bahnson Company	28	A
Barber-Colman Co., Textile Div.	229	B
Bemis Bro. Bag Co.	8	P
Brainard Steel Div., Sharon Steel Corp.	85	P

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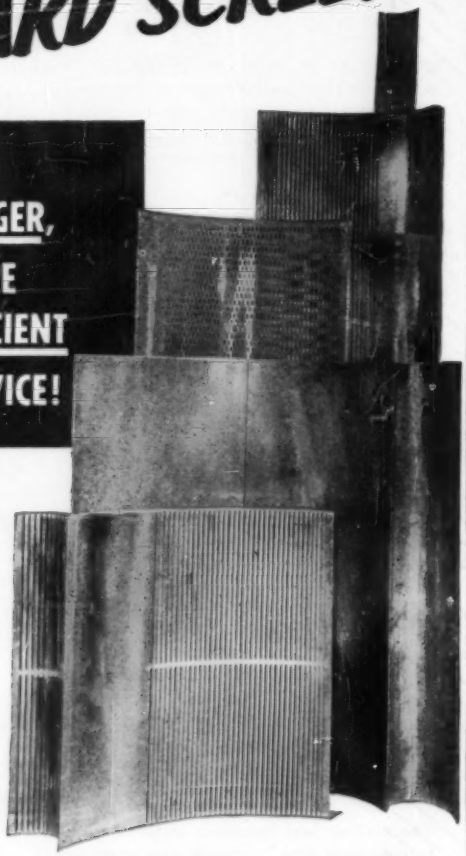

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Branson Co.	50	G
Buffalo Forge Co.	72	A
Caldwell Co., Inc., W. E.	234	B, E
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Film Dept.	77	G
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Eastman Chemical Prods., Inc.	73	C
Eastman Machine Co.	233	E
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Esso Standard Oil Co.	67	M
Fairbanks, Morse & Co.	207	K
Fairtex Corp.	50	G
Fidelity Machine Co., Inc.	91	L
Fletcher Works Inc.	214	T
Foster Machine Co.	155	T
Foxboro Co.	76	K
Franklin Process Co.	49	G
Gardner-Denver Co.	52	H
Garland Coal Co.	223	N
Garland Mfg. Co.	150	M, R
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Gaylord Container Corp. Div. of Crown Zellerbach Corp.	171	P
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Goodrich Chem. Co., B. F.	32	C
Goodyear Tire & Rubber Co., Inc.	5	C
Gulf Oil Corp.	55	M
Harshaw Chemical Co.	177	C
Hartford Mach. Screw Co.	200	T
Haskell-Dawes Mach. Co., Inc.	212	T
Hungerford & Terry, Inc.	230	B
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Ideal Industries, Inc.	66	T
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International Salt Co., Inc.	197	C...E
Jenkins Bros.	45	H
Jenkins' Sons, Inc., M. W.	218	E
Johnson Corp.	228	H
Johnson Bronze Co.	230	O...Q
Keever Starch Co.	60	C
Kidde Mfg. Co., Inc.	190	L...R
Kuljian Corp., The	233	N
Laurel Soap Mfg. Co., Inc.	243	C
Leighton Machine Co.	37	L
Lindly & Co., Inc.	206	K
Link-Belt Co.	7	Q
Loper Co., Ralph E.	234	N
Mackie & Sons, Ltd., James	189	E
Main, Inc., Chas. T.	233	N
Marshall & Williams Corp.	227	E
Mathieson Chemicals Olin Mathieson Chem. Corp.	195	C
M-B Products Co.	214	H
McBride, Ed. J.	6	R
Minneapolis-Honeywell Reg. Co. Industrial Div.	174	K
Moisture Register Co.	222	K
Monsanto Chemical Co. Plastic Div.	215	C
Montgomery Co., The	234	G
Morton Salt Co.	167	C
National Aniline Div., Allied Chem. & Dye Corp.	26-27	C
National Starch Products Inc.	83	C
New Departure Div. of General Motors Corp.	15	O...Q
Norgren Co., C. A.	53	M
Olin Mathieson Chem. Corp. Industrial Chemicals Div.	195	C
Ordnance Gauge Co.	208	L
Parks-Cramer Co.	16	A...D
Platt Bros. Ltd.	146	T
Precision Gear & Machine Co.	220	Q
Proctor & Schwartz, Inc.	201	E
Reiner Inc., Robert	217	R
Republic Steel Corp.	182-183	O
Rhoads & Sons, J. E.	40-41	Q
Riggs & Lombard, Inc.	44	E
Robert & Co., Associates	2nd Cover	N
Roberts Company	10-11	T
Rohm & Haas Co.	172	C
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Ryerson & Son Inc., J. T.	208	O
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Sandoz, Inc.	46	C
Sargent's Sons Corp., C. G.	194	T
Schweiter Ltd.	185	R
Shawinigan Resins Corp.	81	C
Sheffield Corp., The	228	K
Signode Steel Strapping Co.	88	P
Sinclair Refining Co.	75	M
SKF Industries, Inc.	168	O...Q
Socony Mobil Oil Co., Inc.	57	M
Solvay Process Div. Allied Chem. & Dye Corp.	205	C

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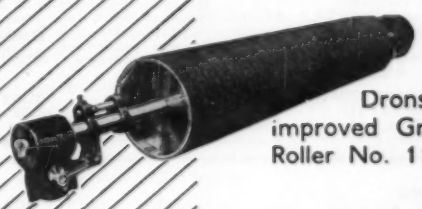

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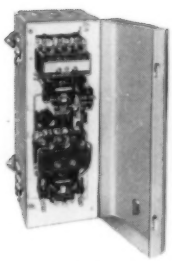

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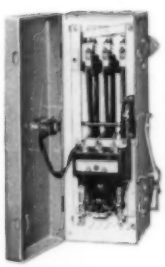

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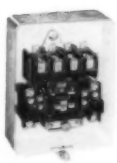

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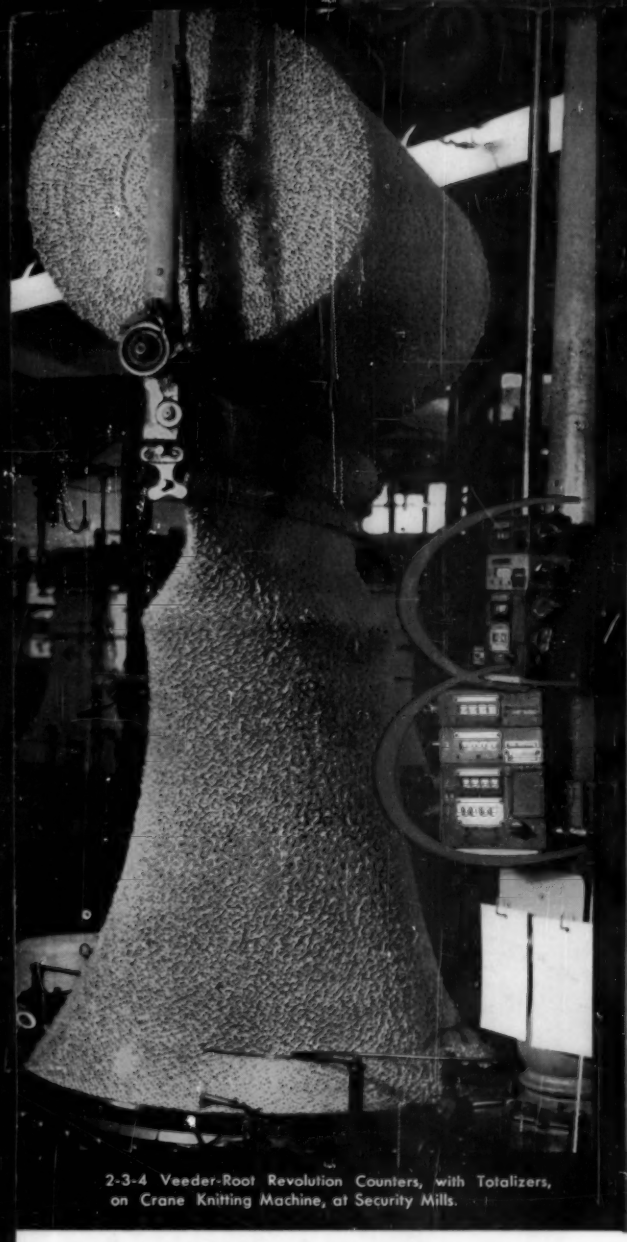
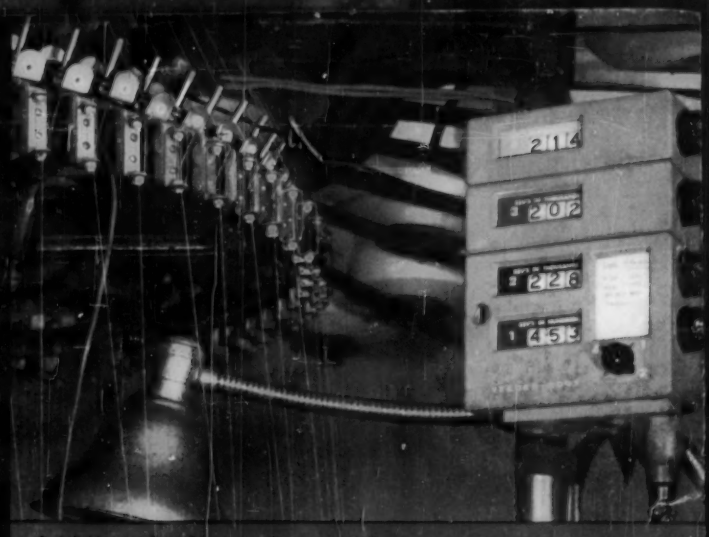
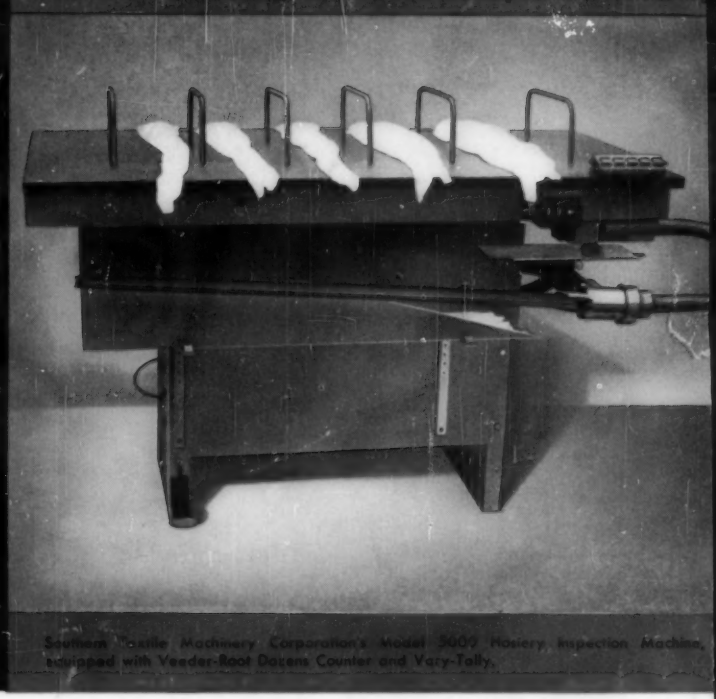


2-3-4 Veeder-Root Revolution Counters, with Totalizers, on Crane Knitting Machine, at Security Mills.



3-shift Veeder-Root Revolution Counter, with Totalizer on knitting machine at Lawrence Mi



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